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TRANSACTIONS

OF

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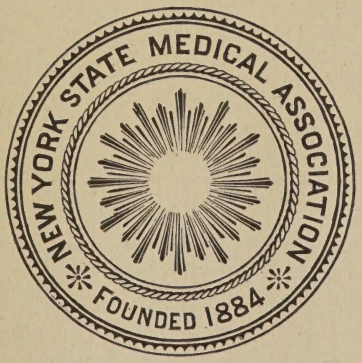
FOR THE YEAR 1890.

VOLUME VII.

EDITED FOR THE ASSOCIATION

By E. D. FERGUSON, M. D.,

OF RENSSELAER COUNTY.



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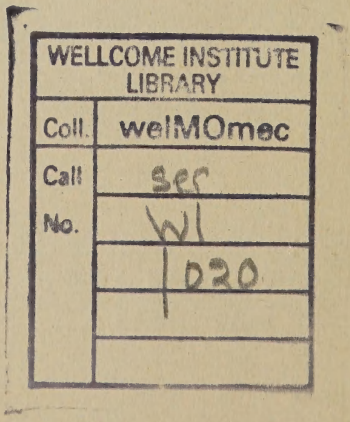

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BRITISH MEDICAL ASSOCIATION Library

OFFICERS AND COUNCIL FOR 1889–'90.

PRESIDENT.

JOHN G. ORTON, M. D., Broome County, Third District.

VICE-PRESIDENTS.

FIRST DISTRICT, DOUGLAS AYRES, M. D., Montgomery County.

SECOND DISTRICT, M. H. BURTON, M. D., Rensselaer County.

FOURTH DISTRICT, E. M. MOORE, JR., M. D., Monroe County.

*FIFTH DISTRICT, WILLIAM B. EAGER, M. D., Orange County.

SECRETARY.

E. D. FERGUSON, M. D., Troy, Rensselaer County.

TREASURER.

J. H. HINTON, M. D., 41 W. 32 St., New York City.

DIRECTOR OF THE LIBRARY.

J. W. S. GOULEY, M. D., 324 Madison Avenue, New York City.

MEMBER OF THE COUNCIL AT LARGE.

GLOVER C. ARNOLD, M. D., New York City.

ELECTED MEMBERS OF THE COUNCIL.

FIRST DISTRICT, WILLIAM H. BIGGAM, M. D., Montgomery County.

" " CHARLES M. KLOCK, M. D., Montgomery County.

SECOND DISTRICT, THOMAS WILSON, M. D., Columbia County.

*Dr. Eager died January 18, 1890, and William McCollom, M. D., of Kings county, was appointed to fill the vacancy.

SECOND DISTRICT J. B. HARVIE, M. D., Rensselaer County.
THIRD DISTRICT, H. O. JEWETT, M. D., Cortland County.
" " J. H. CHITTENDEN, M. D., Broome County.
FOURTH DISTRICT, S. T. CLARK, M. D., Niagara County.
" " R. J. MENZIE, M. D., Livingston County.
FIFTH DISTRICT, JOHN G. TRUAX, M. D., New York County.
" " A. L. CARROLL, M. D., New York County.

COMMITTEE OF ARRANGEMENTS FOR 1889–'90.

JOHN G. ORTON, PRESIDENT.
E. D. FERGUSON, SECRETARY.
Ex-officio Members of the Committee.

JOHN G. TRUAX, *Chairman.*
CHARLES E. DENISON, *Secretary.*

E. S. F. ARNOLD,
GLOVER C. ARNOLD,
WILLIAM R. BALLOU,
ALFRED L. CARROLL,
A. PALMER DUDLEY,
JOHN W. S. GOULEY,
JOHN H. HINTON,
CHARLES A. LEALE,
J. R. MACGREGOR,
WILLIAM McCOLLOM,
S. B. WYLIE McLEOD,
AUGUSTUS D. RUGGLES,
JOHN SHRADY,
E. H. SQUIBB.

OFFICERS AND COUNCIL FOR 1890–'91.

The Eighth Annual Meeting will be held at the Mott Memorial Library in New York City, beginning Wednesday, October 28, 1891.

PRESIDENT.

STEPHEN SMITH, M. D., 574 Madison Avenue, New York City.

VICE-PRESIDENTS.

FIRST DISTRICT, DOUGLAS AYRES, M. D.,
Fort Plain, Montgomery County.

SECOND DISTRICT, A. T. VAN VRANKEN, M. D.,
West Troy, Albany County.

THIRD DISTRICT, J. D. TRIPP, M. D.,
Auburn, Cayuga County.

FOURTH DISTRICT, ROBERT J. MENZIE, M. D.,
Caledonia, Livingston County.

SECRETARY (and Acting Treasurer).

E. D. FERGUSON, M. D., Troy, Rensselaer County.

DIRECTOR OF THE LIBRARY.

J. W. S. GOULEY, M. D., 324 Madison Avenue, New York City.

MEMBER OF THE COUNCIL AT LARGE.

S. B. WYLIE McLEOD, M. D.,
247 W. 23 St., New York, New York County.

ELECTED MEMBERS OF THE COUNCIL.

FIRST DISTRICT, W. D. GARLOCK, M. D.,
Little Falls, Herkimer County; term expires 1892.

" " WILLIAM H. BIGGAM, JR., M. D.,
Fort Plain, Montgomery County; term expires 1891.

SECOND DISTRICT, J. B. HARVIE, M. D.,
Troy, Rensselaer County; term expires 1892.

" " THOMAS WILSON, M. D.,
Claverack, Columbia County; term expires 1891.

THIRD DISTRICT, GEORGE DOUGLAS, M. D.,
Oxford, Chenango County; term expires 1892.

" " H. O. JEWETT, M. D.,
Cortland, Cortland County; term expires 1891.

FOURTH DISTRICT, THOMAS D. STRONG, M. D.,
Westfield, Chautauqua County; term expires 1892.

" " S. T. CLARK, M. D.,
Lockport, Niagara County; term expires 1891.

FIFTH DISTRICT, A. L. CARROLL, M. D.,
30 W. 59th St., New York, New York County;
term expires 1892.

" " JOHN G. TRUAX, M. D.,
17 E. 127th St., New York, New York County;
term expires 1891.

OFFICERS OF THE BRANCH ASSOCIATIONS FOR 1891.

FIRST OR NORTHERN BRANCH.

The Seventh Annual Meeting will be held as appointed by the President and Secretary.

Officers.

President, DOUGLAS AYRES, M. D.,
Fort Plain, Montgomery County.
Secretary, EZRA GRAVES, M. D.,
Amsterdam, Montgomery County.

Executive Committee.

WILLIAM GILLIS, M. D., Fort Covington, Franklin County.
ISAAC de ZOUCHE, M. D., Gloversville, Fulton County.
THOMAS McGANN, M. D., Wells, Hamilton County.
W. D. GARLOCK, M. D., Little Falls, Herkimer County.
J. MORTIMER CRAWE, M. D., Watertown, Jefferson County.
ALBERT A. JOSLIN, M. D., Martinsburg, Lewis County.
H. M. LEACH, M. D., Glen, Montgomery County.
G. ALDER BLUMER, M. D.. Utica, Oneida County.
E. F. MARSH, M. D., Fulton, Oswego County.
GUY REUBEN COOK, M. D., Louisville, St. Lawrence County.

SECOND OR EASTERN BRANCH.

The Seventh Annual Meeting will be held at Troy, Rensselaer County, on the fourth Thursday in June, 1890.

Officers.

President, A. T. VAN VRANKEN, M. D.,
West Troy, Albany County.
Secretary, C. H. BURBECK, M. D., Troy, Rensselaer County.

Executive Committee.

W. B. SABIN, M. D., West Troy, Albany County.
E. M. LYON, M. D., Plattsburgh, Clinton County.
J. W. LOCKWOOD, M. D., Philmont, Columbia County.
LYMAN BARTON, M. D., Willsborough, Essex County.
A. H. GETTY, M. D., Athens, Greene County.

J. P. MARSH, M. D., Troy, Rensselaer County.
M. D. BABCOCK, M. D., Saratoga Springs, Saratoga County.
CHARLES HAMMER, M. D., Schenectady, Schenectady County.
WILLIAM HAGADORN, M. D., Gilboa, Schoharie County.
G. R. MARTINE, M. D., Glens Falls, Warren County.
A. J. LONG, M. D., Whitehall, Washington County.

THIRD OR CENTRAL BRANCH.

The Seventh Annual Meeting will be held at Binghamton, Broome County, on the third Thursday in June, 1890.

Officers.

President, J. D. TRIPP, M. D., Auburn, Cayuga County.
Secretary, F. W. PUTNAM, M. D., Binghamton, Broome County.

Executive Committee.

W. A. MOORE, M. D., Binghamton, Broome County.
W. R. LAIRD, M. D., Auburn, Cayuga County.
C. W. BROWN, M. D., Elmira, Chemung County.
L. J. BROOKS, M. D., Norwich, Chenango County.
GEORGE D. BRADFORD, M. D., Homer, Cortland County.
W. B. MORROW, M. D., Walton, Delaware County.
. . . . . Madison County.
F. O. DONOHUE, M. D., Syracuse, Onondaga County.
JOSHUA J. SWEET, M. D., Unadilla, Otsego County.
B. T. SMELZER, M. D., Havana, Schuyler County.
ELIAS LESTER, M. D., Seneca Falls, Seneca County.
W. L. AYER, M. D., Owego, Tioga County.
WILLIAM FITCH, M. D., Dryden, Tompkins County.

FOURTH OR WESTERN BRANCH.

The Seventh Annual Meeting will be held at Rochester, Monroe County, on the second Tuesday in May, 1891.

Officers.

President, ROBERT J. MENZIE, M. D.,
Caledonia, Livingston County.
Secretary, WM. H. THORNTON, M. D.,
570 Niagara St., Buffalo, Erie County.

Executive Committee.

B. C. WAKELY, M. D., Angelica, Alleghany County.
S. J. MUDGE, M. D., Olean, Cattaraugus County.
NELSON G. RICHMOND, M. D., Fredonia, Chautauqua County.
ALVIN A. HUBBELL, M. D., Buffalo, Erie County.
WILLIAM B. SPRAGUE, M. D., Pavilion, Genesee County.
J. P. BROWN, M. D., Tuscarora, Livingston County.
R. M. MOORE, M. D., Rochester, Monroe County.
S. T. CLARK, M. D., Lockport, Niagara County.
*J. H. BUDD, M. D., Geneva, Ontario County.
WM. C. BAILEY, M. D., Albion, Orleans County.
D. J. CHITTENDEN, M. D., Addison, Steuben County.
DARWIN COLVIN, M. D., Clyde, Wayne County.
Z. J. LUSK, M. D., Warsaw, Wyoming County.
WILLIAM OLIVER, M. D., Penn Yan, Yates County.

FIFTH OR SOUTHERN BRANCH.

The Seventh Annual Meeting will be held in Brooklyn, Kings County, on the fourth Tuesday in May, 1891.

Officers.

President, STEPHEN SMITH, M. D.,
574 Madison Avenue, New York City.
Secretary, E. H. SQUIBB, M. D.,
P. O. Box 94, Brooklyn, Kings County.

Executive Committee.

J. G. PORTEOUS, M. D., Poughkeepsie, Dutchess County.
W. G. RUSSELL, M. D., Brooklyn, Kings County.
JOHN SHRADY, M. D., New York, New York County.
J. H. HUNT, M. D., Port Jervis, Orange County.
WILLIAM YOUNG, M. D., Cold Spring, Putnam County.
E. G. RAVE, M. D., Hicksville, Queens County.
F. U. JOHNSTON, M. D., New Brighton, Richmond County.
WILLIAM GOVAN, M. D., Stony Point, Rockland County.
W. D. WOODEND, M. D., Huntington, Suffolk County.
T. W. BENNETT, M. D., Jeffersonville, Sullivan County.
H. VAN HOEVENBERG, M. D., Kingston, Ulster County.
H. E. SCHMID, M. D., White Plains, Westchester County.

*Deceased.

LIST OF PRESIDENTS AND VICE-PRESIDENTS FROM THE FOUNDING OF THE ASSOCIATION.

1884.

PRESIDENT.

HENRY D. DIDAMA, M. D.. Onondaga County, Third District.

VICE-PRESIDENTS.

FIRST DISTRICT, J. MORTIMER CRAWE, M. D., Jefferson County.
SECOND DISTRICT, TABOR B. REYNOLDS, M. D., Saratoga County.
FOURTH DISTRICT, B. L. HOVEY, M. D., Monroe County.
FIFTH DISTRICT, NATH'L C. HUSTED, M. D., Westchester County.

1885.

PRESIDENT.

*JOHN P. GRAY, M. D., Oneida County, First District.

VICE-PRESIDENTS.

SECOND DISTRICT, WILLIAM H. ROBB, M. D., Montgomery County.
THIRD DISTRICT, JOHN G. ORTON, M. D., Broome County.
FOURTH DISTRICT, JOSEPH C. GREENE, M. D., Erie County.
FIFTH DISTRICT, *JOSEPH C. HUTCHINSON, M. D., Kings County.

1886.

PRESIDENT.

E. M. MOORE, M. D., Monroe County, Fourth District.

VICE-PRESIDENTS.

FIRST DISTRICT, WILLIAM GILLIS, M. D., Franklin County.
SECOND DISRTICT, H. C. VAN ZANDT, M. D., Schenectady County.
THIRD DISTRICT, *FREDERICK HYDE, M. D., Cortland County.
FIFTH DISTRICT, J. G. PORTEOUS, M. D., Dutchess County.

1887.

PRESIDENT.

*ISAAC E. TAYLOR, M. D., New York County, Fifth District.

* Deceased.

VICE-PRESIDENTS.

FIRST DISTRICT, JOHN P. SHARER, M. D., Herkimer County.
SECOND DISTRICT, L. C. DODGE, M. D., Clinton County.
THIRD DISTRICT, GEORGE W. AVERY, M. D., Chenango County.
FOURTH DISTRICT, DARWIN COLVIN, M. D., Wayne County.

1888.

PRESIDENT.

JOHN CRONYN, M. D., Erie County, Fourth District.

VICE-PRESIDENTS.

FIRST DISTRICT, BYRON DE WITT, M. D., Oswego County.
SECOND DISTRICT, ROBERT SELDEN, M. D., Greene County.
THIRD DISTRICT, CHARLES W. BROWN, M. D., Chemung County.
FIFTH DISTRICT, EDWIN BARNES, M. D., Dutchess County.

1889.

PRESIDENT.

WILLIAM T. LUSK, M. D., New York County, Fifth District.

VICE-PRESIDENTS.

FIRST DISTRICT, S. H. FRENCH, M. D., Montgomery County.
SECOND DISTRICT, R. C. McEWEN, M. D., Saratoga County.
THIRD DISTRICT, ELIAS LESTER, M. D., Seneca County.
FOURTH DISTRICT, THOMAS D. STRONG, M. D., Chautauqua County.

1890.

PRESIDENT.

JOHN G. ORTON, M. D., Broome County, Third District.

VICE-PRESIDENTS.

FIRST DISTRICT, DOUGLAS AYRES, M. D., Montgomery County.
SECOND DISTRICT, M. H. BURTON, M. D., Rensselaer County.
FOURTH DISTRICT, E. M. MOORE, JR., M. D., Monroe County.
FIFTH DISTRICT, WILLIAM McCOLLOM (Vice WILLIAM B. EAGER, deceased), Kings County.

LIST OF FELLOWS REGISTERED AT THE SEVENTH ANNUAL MEETING IN NEW YORK CITY.

Held October 22, 23, and 24, 1890.

FIRST DISTRICT.

FULTON COUNTY.

John Edwards, Gloversville.

JEFFERSON COUNTY.

Ira H. Abell, Antwerp.

MONTGOMERY COUNTY.

Douglas Ayres, Fort Plain.
Wm. H. Biggam, Jr., Fort Plain.
Richard G. Johnson, Amsterdam.
Charles M. Klock, St. Johnsville.
William H. Robb, Amsterdam.

ONEIDA COUNTY.

Amos P. Dodge, Oneida Castle.
Christopher C. Reid, Rome.

OSWEGO COUNTY.

Byron DeWitt, Oswego.

SECOND DISTRICT.

ALBANY COUNTY.

A. T. Van Vranken, West Troy.

COLUMBIA COUNTY.

C. E. Fritts, Hudson.
Thomas Wilson, Claverack.

GREENE COUNTY.

George Conkling, Durham.
W. B. Huestis, Kiskatom.
O. G. Selden, Catskill.
Robert Selden, Catskill.

RENSSELAER COUNTY.

Charles Burbeck, Troy.
E. D. Ferguson, Troy.
William Finder, Troy.
George E. Lyon, Troy.
James P. Marsh, Troy.
C. E. Nichols, Troy.

SARATOGA COUNTY.

Charles S. Grant, Saratoga Springs.
C. W. Keefer, Mechanicsville.
T. B. Reynolds, Saratoga Springs.

SCHENECTADY COUNTY.

Charles Hammer, Schenectady.
R. A. McDougell, Duanesburgh.

WARREN COUNTY.

G. R. Martine, Glens Falls.

THIRD DISTRICT.

BROOME COUNTY.

John G. Orton, Binghamton.

CHENANGO COUNTY.

George Douglas, Oxford.

CORTLAND COUNTY.

George D. Bradford, Homer. Homer O. Jewett, Cortland.

MADISON COUNTY.

Martin Cavana, Oneida.

ONONDAGA COUNTY.

H. D. Didama, Syracuse. N. Jacobson, Syracuse.

OTSEGO COUNTY.

J. K. Leaning, Cooperstown.

TIOGA COUNTY.

W. L. Ayer, Owego.

FOURTH DISTRICT.

CHAUTAUQUA COUNTY.

Thomas D. Strong, Westfield.

ERIE COUNTY.

F. W. Bartlett, Buffalo. Roswell Park, Buffalo.
John Cronyn, Buffalo. W. H. Thornton, Buffalo.
C. C. Frederick, Buffalo. C. C. Wyckoff, Buffalo.
J. C. Greene, Buffalo.

GENESEE COUNTY.

M. W. Townsend, Bergen.

LIVINGSTON COUNTY.

R. J. Menzie, Caledonia.

MONROE COUNTY.

George W. Goler, Rochester. E. M. Moore, Rochester.
B. L. Hovey, Rochester.

NIAGARA COUNTY.

W. Q. Huggins, Sanborn.

ONTARIO COUNTY.

F. D. Vanderhoof, Phelps.

STEUBEN COUNTY.

John S. Jamison, Hornellsville. M. E. Van Dusen, Hornellsville.

WAYNE COUNTY.

D. Calvin, Clyde.
N. E. Landon, Newark.

FIFTH DISTRICT.

DUTCHESS COUNTY.

Edwin Barnes, Pleasant Plains.
J. S. Bird, Hyde Park.
C. L. Fletcher, Wing Station.
John M. Julian, Moore's Mill.
Irving D. Le Roy, Pleasant Valley.
R. C. Van Wyck, Hopewell Junction.

KINGS COUNTY.

George W. Baker, Brooklyn.
A. N. Bell, Brooklyn.
S. H. Benton, Brooklyn.
J. C. Bierwirth, Brooklyn.
W. F. Gardiner, Brooklyn.
John A. Jenkins, Brooklyn.
N. W. Leighton, Brooklyn.
T. M. Lloyd, Brooklyn.
Jesse B. Lung, Brooklyn.
William McCollom, Brooklyn.
E. J. C. Minard, Brooklyn.
Nelson L. North, Brooklyn.
A. R. Paine, Brooklyn.
S. R Pray, Brooklyn.
H. B. Reed, Brooklyn.
W. G. Russell, Brooklyn.
E. H. Squibb, Brooklyn.
E. R. Squibb, Brooklyn.
C. O. H. Steinke, Brooklyn.
J. D. Sullivan, Brooklyn.
J. R. Vanderveer, Brooklyn.
George Wieber, Brooklyn.

NEW YORK COUNTY.

S. T. Armstrong, New York.
E. S. F. Arnold, New York.
Glover C. Arnold, New York.
F. A. Baldwin, New York.
W. R. Ballou, New York.
James Bathgate, Morrisania.
H. M. Biggs, New York.
J. D. Bryant, New York.
A. L. Carroll, New York.
T. M. L. Chrystie, New York.
J. R. Conway, Jr., New York.
R. C. Davis, New York.
C. Ellery Denison, New York.
Ellery Denison, New York.
F. S. Dennis, New York.
A. Palmer Dudley, New York.
Ellsworth Eliot, New York.
J. T. Erdmann, New York.
F. Van Fleet, New York.
T. W P. Flinn, New York.
Austin Flint, New York.
W. H. Flint, New York.
Guido Furman, New York.
John P. Garrish, New York.
Henry Goldthwaite, New York.
J. W. S. Gouley, New York.
Frank Grauer, New York.
G. T. Harrison, New York.
Abbott Hodgman, New York.
M. C. Holmes, New York.
D. L. Hubbard, New York.
G. E. Hubbard, New York.
S. T. Hubbard, New York.
Ferdinand King, New York.
C. A. Leale, New York.
Robert Lewis, New York.
C. E. Lockwood, New York.
O. C. Ludlow, New York.

Anna Lukens, New York.
P. J. Lynch, New York.
J. R. MacGregor, New York.
J. C. Mackenzie, New York.
T. J. McGillicuddy, New York.
J. P. McGowan, New York.
S. H. McIlroy, New York.
S. B. W. McLeod, New York.
J. A. McLochlin, New York.
T. H. Manley, New York.
D. Mathews, New York.
G. C. H. Meier, New York.
W. T. Miller, New York.
S. E. Milliken, New York.
R. L. Miranda, New York.
H. W. Mitchell, New York.
Valentine Mott, New York.
John Murphy, New York.
S. J. Murray, New York.
B. F. Ochs, New York.
John Parsons, New York.
Charles Phelps, New York.
H. A. Pooler, New York.
S. S. Purple, New York.
Ira B. Read, New York.
B. M. Ricketts, New York.
A. D. Ruggles, New York.
L. A. Sayre, New York.
G. J. de Quesada, New York.
John Shrady, New York.
H. M. Silver, New York.
J. W. Small, New York.
Stephen Smith, New York.
J. G. Truax, New York.
C. P. Tucker, New York.
William T. White, New York.
William E. Woodend, New York.
J. A. Wyeth, New York.

ORANGE COUNTY.

Milton C. Conner, Middletown.

RICHMOND COUNTY.

F. U. Johnston, New Brighton.

ROCKLAND COUNTY.

William Govan, Stony Point.

SUFFOLK COUNTY.

Edward H. Hamil, Islip.

ULSTER COUNTY.

Henry Van Hoevenberg, Kingston. John J. Ward, Ellenville.

WESTCHESTER COUNTY.

T. J. Acton, Croton Landing.
E. F. Brush, Mount Vernon.
N. C. Husted, Tarrytown.
E. H. Schmid, White Plains.

SUMMARY BY DISTRICTS OF FELLOWS IN ATTENDANCE.

First District,	10
Second District,	19
Third District,	9
Fourth District,	19
Fifth District,	114
Total,	171

DELEGATES FROM OTHER MEDICAL ORGANISATIONS AND INVITED GUESTS IN ATTENDANCE.

NORTON STRONG, M. D., Assistant Surgeon U. S. Army.

Connecticut.

CHARLES D. ALTON, M. D., Hartford,	Delegate.
W. H. CARMALT, M. D., New Haven,	Invited Guest.
J. F. CALEF, M. D., Cromwell,	
GUSTAVUS ELIOT, M. D., New Haven,	Delegate.
WM. C. HOLMES, M. D., Waterbury,	
W. C. WILE, M. D., Newton,	Invited Guest.

Illinois.

R. E. STARKWEATHER, M. D., Chicago,	Invited Guest.

Maine.

B. B. FOSTER, M. D., Portland,	Delegate.
GALEN M. WOODCOCK, M. D., Bangor,	Delegate.

Massachusetts.

HENRY O. MARCY, M. D., Boston,	Delegate.
JAMES J. PUTNAM, M. D., Boston,	Invited Guest.
LINCOLN R. STONE, M. D., Newton,	Delegate.

New Jersey.

J. J. DALY, M. D., Rahway,	Invited Guest.

New York.

Hon. CHARLES H. TRUAX, LL. D., New York,	Invited Guest.

North Carolina.

CARL VON RUCK, M. D., Ashville,	Invited Guest.

Ohio.

A. N. READ, M. D., Norwalk,	Invited Guest.

Pennsylvania.

H. A. HARE, M. D., Philadelphia,	Invited Guest.
W. W. KEEN, M. D., Philadelphia,	Invited Guest.
CHARLES K. MILLS, M. D., Philadelphia,	Invited Guest.
JOHN B. ROBERTS, M. D., Philadelphia,	Invited Guest.
T. R. WILLIAMS, M. D., Delancey,	Invited Guest.

Rhode Island.

E. F. WALKER, M. D., Providence,	Delegate.

ADDRESS OF WELCOME AND REPORT OF THE COMMITTEE OF ARRANGEMENTS.

By J. G. Truax, M. D., of New York County, Chairman of the Committee.

Gentlemen: Speaking in the name of the Association, in the capacity of chairman of the Committee of Arrangements, it gives me great pleasure to welcome you to this city and meeting.

As chairman of the Committee of Arrangements, this is the second time it has been my privilege to welcome you to our city, but the first to our home.

Since the last annual meeting we have been fortunate enough to secure a permanent home for the library, as well as a meeting place of the Association. That this will add very much to the importance, influence, and growth of the Association there can be no doubt.

The full effect of this step may not be felt this year or next, but the ultimate result will be the gathering in and uniting of the whole medical profession of the state of New York.

Our Association now numbers nearly seven hundred and fifty members. With but little effort on the part of each Fellow, this number could be largely increased during the next twelve months. The only sure way of uniting the regular profession of this state is to get all worthy men into our Association. Do not this home, this library, these meetings, furnish incentive enough to fill the breast of every Fellow with enthusiasm? The work done by each Fellow during the next year will be the answer to my question. Those of us who have worked the hardest are the most hopeful for the future greatness of the Association.

This has not been an easy year for your Committee of Arrangements to secure the material for so long a session. Many of the Fellows have been in Europe during a great

part of the summer, and, before leaving, much of their time was spent in the preparation of papers to be read at Berlin. Nevertheless, a perusal of the programme will satisfy one that this the seventh annual meeting of the New York State Medical Association will be both interesting and instructive.

There are to be five addresses,—one by the President, John G. Orton, M. D., of Broome county; one on Medicine, by John Cronyn, M. D., of Erie county; one on Surgery, by Stephen Smith, M. D., of New York county; one on Obstetrics, by Carlton C. Frederick, M. D., of Erie county; and one on the Medicine of the Classics, by the Hon. Charles H. Truax, LL.D., of New York.

The discussions will be upon the two following subjects: First, Intra-Cranial Lesions. This discussion will be opened by W. W. Keen, M. D., of Pennsylvania. Second, Discussion on Obstetrics. This discussion will be opened by S. B. Wylie McLeod, M. D., of New York.

By referring to the programme, you will get any information desired as to the time of, and persons connected with, the discussion of each subject.

Altogether, there are thirty-seven subjects, to be considered by fifty-five speakers.

These contributions come from the five geographical districts of the state, and from six sister states, in the following proportion:

The First District	3
Second "	3
Third "	7
Fourth "	6
Fifth "	28
State of Massachusetts	1
State of Michigan	1
State of Pennsylvania	2
State of Connecticut	2
State of New Jersey	1
State of Ohio	1

In the five districts, Fellows of the Association from fourteen counties contribute essays in the following proportions:

First District,	Fulton county,	. . . .	1
" "	Montgomery county,	. . . .	2
Second "	Rensselaer "	. . . .	2
" "	Schenectady "	. . . .	1
Third "	Broome "	. . . .	2
" "	Cortland "	. . . .	2
" "	Madison "	. . . .	1
" "	Onondaga "	. . . .	2
Fourth "	Erie "	. . . .	4
" "	Niagara "	. . . .	1
" "	Wayne "	. . . .	1
Fifth "	New York "	. . . .	25
" "	Westchester "	. . . .	2
" "	Kings "	. . . .	1

Classified in accordance with their subjects, the fifty-five scientific contributions are as follows:

19 on medicine.
14 on general surgery.
22 on special surgery.

To present these contributions properly to your attention much time is needed. Therefore your committee has provided that there shall be two night sessions in addition to the three regular morning and afternoon sessions. The morning sessions will be opened at 9 o'clock, the afternoon sessions at half past one, and the evening sessions at half past seven.

Since the distribution of the official programme, the following additions have been made:

Samuel E. Milliken, M. D., of New York county, will read a paper on "An Analysis of One Hundred Cases of Irreducible Hernia and Treatment of the Same."

W. C. Wile, M. D., of Connecticut, will report a case of congenital dislocation of both hip joints.

It would give your chairman great pleasure to speak of some of the special work done last year, but he will refrain from doing so, leaving it to the committee appointed by your council for that purpose.

PRESIDENT'S ANNUAL ADDRESS.

THE MEDICAL PROFESSION AS A PUBLIC TRUST.

By John G. Orton, M. D., of Broome County.

October 22, 1890.

Mr. Vice-President and Fellows of the New York State Medical Association: Permit me to echo the congratulations which have been so cordially extended by the Committee of Arrangements.

We are indeed happy in having at last a permanent abiding-place, and one so congenial to us all. Too much praise cannot be awarded to those members of the Council who have laboured incessantly for the consummation of this great and beneficent purpose. In such a home as this, surrounded by so much of comfort, refinement, and intellectual luxury (a medical library of 12,000 volumes), this Association is to be this day doubly congratulated. We can now feel that whatever we do to enrich our library by the contributions of books, journals, manuscripts, or other valuable considerations, will not lack security or the elements of permanency. One of the strongest bonds of union for any learned organisation is to be found in its ownership of a well selected library. To this place may the members of this Association annually turn their steps from every city and hamlet, from the ocean to the lakes, from the mountains and the plains, and, thronging its halls, make melody with the joyous chorus of our reunion in fraternal fellowship.

While thanking you for the high position of honour and trust to which your generous suffrages have unexpectedly raised your humble servant, I am not unmindful of the modesty which becomes me in recognising the want of adaptability and experience in the duties of a presiding officer, and therefore bespeak your kind indulgence and assistance.

The programme which has been prepared for you is so replete with designated subjects of scientific and practical interest to us all, that I promise to detain you only a short time, in the simple presentation of some thoughts and suggestions on "The Medical Profession as a Public Trust."

The history of medicine through ancient and modern times reveals the fact that it has always kept pace with the physical and moral sciences, and its origin and growth, as an element of civilisation, is worthy of consideration and attentive study.

It is pleasant and sometimes profitable to turn, on proper occasions, from the activities of professional life to the contemplation of the past, to the sources of our art, to the principles and necessities that called it into existence, to the trials and struggles of our professional ancestry. We shall thereby be the better able to comprehend our own favoured position, to understand the extent of our advancement, to what causes we owe our progress, the labours and achievements still before us, and the places of honour to which we ourselves are likely to be assigned when the history of the present shall be written. But I do not intend, certainly not at this time, to call into review the periods which have marked the advent and progress of medicine in the various countries and nationalities of the globe. That has been already done by far abler hands, and is indeed a part of the classical history of our profession. It is sufficient for my purposes, in considering the present position of the medical profession in this country as a public trust, to recognise its status as comprehended under its

Opportunities for Education and Instruction, its
Standard Literature and Journalism, its
Social Position, its
Society Organisations and Ethical Spirit, its
Legal Relations, its
Scientific Investigation, and its crowning glory in its opportunities for the prevention of disease and the prolongation of life.

The intelligent people of this country have laid firm hold upon the principle that knowledge is the universal right, duty, and interest of man, and that the education of the masses is indispensable to the extension and preservation of free institutions. With the establishment of this fundamental principle, and interwoven into the policy of our state and national governments, we recognise the reciprocal relations which should subsist between the citizen and the constituted authorities. Our country is our commonwealth. We have all an equal share in her;—her laws are alike for the protection of all, her blessings are our common privileges, her glory is our common pride. But common privileges impose a common responsibility, and equal rights can never be disjoined from equal duties. The Constitution, which, under God, secures our liberties, is in the keeping of us all. It is a sacred trust which no man can delegate; he holds it for himself not only, but for his children, for posterity, and for the world. And he who cannot read it, who does not understand its provisions, who could not on a just occasion assert its principles, no more sustains the true character of an American citizen than the man who would not seal it with his blood.

It is a principle of all good government, and older than written constitutions, to provide for the safety of the people, and to secure to them life, liberty, and the pursuit of happiness. Political economy was designed for the improvement of mankind, and that system is a true one which educates and elevates the people; which dispenses equal, exact, and speedy justice; which maintains a high standard of public morals; which encourages virtuous industry, and seeks to eradicate pauperism and crime.

From the wise system of common schools adopted in this country, and which may be regarded as the true palladium of our freedom, prosperity, and happiness, the door is wide open in the higher schools, in the academies, colleges, and universities, for every young man of genius and enterprise. This has been made possible even for the worthy sons of poverty,

by private munificence and state patronage; and a liberal education is within the grasp of every deserving student who *wills* that he will have it.

These latter days of the nineteenth century are witnessing the most stupendous strides in every department of science, literature, and art; and that man must be indeed a poor observer of the signs of the times who does not readily associate these advancements with the modern plans and provisions for education and the diffusion of knowledge.

While every profession and honourable vocation has been stimulated to activity and advanced in power and usefulness, in proportion as it has kept pace with the progress of knowledge, it is the *opportunities afforded the medical profession of this country for education and instruction* that call for special recognition at our hands. I am not ignorant of the fact that it has been quite the fashion for many years past, and even to the present time, for essayists, special committees of medical organisations, and pessimistic medical writers generally, to deplore the annual exodus of hundreds and thousands of graduates from our colleges. Perhaps the law of supply and demand may not always have operated with precision. Perhaps some, or even many, of these new disciples of Esculapius may not have carried with them to their abodes on the distant frontier settlements all the mature judgment, precision in diagnosis, and skill in treatment, which come for the most part only by experience, and patient, continued study, after college life is ended. But even with the many lamentable exceptions of incompetency and discredit to the profession, I still believe the great majority of the graduates of scientific medicine in this country at the present day are a credit alike to themselves, to the colleges, and to the commonwealth. The time is rapidly approaching, and indeed is even now at hand, when most of the medical institutions organised for instruction will furnish every facility for a most thorough and efficient education.

The ready acquiescence in the general demand of the profession for an extension of the college term and curriculum,

and also for a requirement of a proper preliminary educational qualification for entrance upon the study, is evidence of a united desire and effort to elevate the standard of medical education. In part fulfilment of this desire, is the recent enactment in this state of a law creating an independent board of medical examiners; and, while as to some of its provisions we may well take exceptions, yet as far as the colleges with which we have any affiliation are concerned, and their students, no harm can come to them. While I am a firm believer in and an advocate of every measure which may tend to maintain and advance the honour and interests of our profession, and recognise the influence of a proper academic training upon the habits, thoughts, and powers of discrimination, as well as the advantages and great importance of a well rounded, intellectual culture, I am not yet prepared to say, with some, that the doors of our medical colleges should be closed to all persons except those wearing literary degrees; but I trust the time is near when their equivalent, at least, will be the universal possession of every medical student. With perhaps no exceptions, the announcements of the various colleges of this country for the coming sessions make it a distinctive feature that proof of a proper preliminary qualification will be required of students before matriculation or graduation. But while this is encouraging, and evidence of some advancement in the right direction, it would be much more satisfactory to the profession if all colleges would state specifically in their announcements the kind of preliminary examinations applicants would be subjected to, or the specific proofs of fitting education required. It is certainly very evident that the trend of the times is in favour of a much higher and more complete preparation for the medical calling; and I trust the day is not distant when not only a minimum qualification will be indicated, but a maximum attainment rightly recognised and honoured. Why not have degrees of special significance and distinction in the medical as well as in other professions? The stimulus of emulation is often required to develop the latent talents, and it is but right, not only to

afford the opportunities, but to recognise and applaud true merit, effort, and success. The medical institution that will plant itself upon such a platform will find it in the end the most popular step ever taken in this country, and around that institution will cluster a body of alumni, honoured at home and abroad. To such an institution endowments are sure to be multiplied until it rests upon an enduring foundation, affording the highest facilities for a thorough and complementary education, exalting the honour, interests, and usefulness of the profession.

But while we are looking forward, working and fondly hoping for the final fulfilment of these perhaps Utopian dreams, still we may even now ask, Are the insinuations true, so freely offered from some quarters, that the majority of American medical colleges are far below par in their opportunities for instruction, and their standard of qualifications for graduation? I doubt the justice of this wholesale indictment and slaughter of the innocents without specifications. I am not standing here to shield or excuse any college for dereliction of duty or incompetency, but it seems to me it is high time for the profession to demand a halt in the incessant harangues disparaging to the standing of American medical colleges. Their general ability in offering abundant opportunities for thorough instruction cannot be truthfully questioned. I believe the great majority of them are more than ready to meet every just requirement of the profession, and that whatever of blame there may be rests at our own doors, in the unqualified and unsuitable material we are permitting or encouraging to engage in the study of medicine. Let every office in the land be permanently closed to students of questionable natural ability and proper preliminary education, and we shall cease to hear of the incompetency and duplicity of our medical colleges.

To those of us who entered upon the study of medicine forty, thirty, twenty, or even ten years ago, it is a surprise and gratification to look over the annual announcements of the colleges for the sessions of 1890 and 1891; or, better still,

to visit those institutions and be eye-witnesses of the many and great opportunities afforded the modern student of medicine, in the extensive curriculum of instruction embraced in the didactic and clinical lectures; the advantages of practical laboratory work in chemistry, physiology, pathology, experimental therapeutics, and other departments of medicine; the admirable arrangements for dissection, the special practical instructions and exercises in the departments of medicine, surgery, gynecology, ophthalmology, and otology, designed for graduates and undergraduates; the resources for clinical instruction afforded by the numerous and well equipped hospitals, dispensaries, infirmaries, and asylums; the advantages accruing to the profession from the establishment of post-graduate schools, and polyclinics, and colleges for graduates; and finally the founding of extensive medical libraries and museums, freely accessible to the profession. For all these, and more, we should be profoundly thankful, and congraulate ourselves that the closing years of the nineteenth century find the medical profession of this country with advantages and opportunities for instruction quite equal to those of Great Britain and continental Europe.

It would consume many years of incessant study and observation to exhaust the resources afforded by such medical centres as Boston, New York, Philadelphia, Baltimore, Chicago, and many cities in the north, south, east, and west. At the risk of criticism I do not hesitate to affirm that for the practical, everyday service of the average American physician, the opportunities afforded in this country for professional instruction, both didactic and clinical, are not only amply sufficient and of the highest excellence, but equally or better adapted to his wants than the renowned institutions of the Old World.

With a general advancement to a higher standard of merit, qualification, and facilities for instruction in our seats of professional learning, with the plans adopted for collective investigation of disease, and opportunities afforded for original research, there has arisen for us an *elevated, distinctive, and*

permanent medical literature. It is impossible to avoid the conviction, that the state of medical literature at any period is the true and only criterion of the condition of the contemporary science and art; and if the history of medicine sustains this conviction, we may rightfully conclude that it is also true of the present, and that the status of the profession in this country may be inferred from the quality of its literature.

While during the first half of the present century there appeared many standard works of great merit by American physicians, conferring honour upon themselves and upon American medicine and literature, it is during the closing half of the century that the most marked advances have been witnessed, in the rapid issue of volumes of great erudition and acknowledged value, establishing an enviable reputation for American medical scholarship and authority, and the highest appreciation at home and abroad. But the special characteristics of the medical literature of the present day in this country are largely due to its journals and to the transactions of its organisations. They comprise, indeed, the most recent observations and the most original matter, and most truly represent the active, living thought of the times and the daily wants of the great mass of the profession. I have no fear of a contradiction in making the assertion that American medical journalism is not only characteristic of the age and of the country, but has assumed proportions and weight of character unexcelled by any other department of literature, science, or art. The light of medical science emanating from these sources is shedding its powerful rays of quickening influence upon the medical profession of this whole country, moulding, guiding, and even controlling their very thoughts and actions in many of the relations of social, ethical, and professional interests.

Honourable and enlightened medical journalism of the present day is doing and will do much more to advance the educational interests and standing of our profession than all the forces of state and national legislation combined.

The Journal of the American Medical Association, which from its inception was designed to represent, in the broadest

sense, the true status and progress of the profession of this country, should be recognised and maintained as the authorised expression of the thought, purposes, and will of American physicians.

A reciprocal relation should exist between the Journal and the profession, and to this end it should be on the subscription list of every physician throughout the length and breadth of the land. We are all of us preferred stockholders in that Journal, and should see to it that its interests and our own are fully protected. But while acknowledging our loyalty to the organ of the National Association, we must by no means forget our great indebtedness to those journals issued from the medical press of the larger cities in every section of the country. They are replete with the results of laborious research, of large experience, of scientific discovery, and every page is filled with the most recent observations and discussions in every department of our science. To discharge rightfully the responsible duties of the trust confided to him, the physician must be informed upon those methods and advances which increase the usefulness, extent, and exactness of his knowledge; and the greatest and most satisfying aid in all that appertains to progress and improvement is the reliable medical journal which visits him from month to month, and from week to week. His subscription is an investment compounded many fold.

In the present state of medical science in this country, and the subdivision of its departments for special investigation, we see the activity of united efforts combined in organisations and journals specially devoted to such interests; and hence we find, particularly in the great medical centres, a large increase during the past few years of literature devoted to a definite field of labour. Without calling in question the ultimate utility and effect of this multiplication upon the future of the profession, we may rest assured that the fundamental truths of our science will ever remain, and that we may cheerfully welcome every honest labourer into the fields of our science, already "ripe for the harvest."

Our medical journalists have done a great and distinctive service, especially to the younger members of the profession, by inviting and encouraging the frequent expression of original thought for the press.

The systematic and conscientious use of the pen as a means of mental development has long since been fully attested by the recorded experience of the best thinkers and writers of every age. It is the duty, then, of every physician, not only to select as his daily companions medical journals devoted to the interests of the profession at large, and work of the general practitioner, and also some publications designed for special fields of labour as his inclination may dictate, but he should also contribute his mite or of his abundance to their columns, recording his observations, his mature thoughts, his conclusions, and sustaining with generous sympathy every effort of real progress in his profession.

Referring to the *social relations* of the medical profession of this country, we are thankful that as yet there are no established ranks, grades, or castes of society which would assign the members of our profession to a special social standing, but that it is precisely what the education and qualities of the individual make it. The intelligent, gentlemanly physician is not only received as a welcome visitor at the fireside and at the bed of sickness, in all shades of society from the highest in the state to the lowest, the wealthy and the beggar alike, but he is also awarded as honourable a seat in all public assemblies, whether social, literary, scientific, or otherwise, as the members of any other class of the community. In part as a compensation for his isolation from the advantages, emoluments, and honours of his highly favoured brethren in the metropolis, the intelligent, educated rural physician is not only often a leader in the social affairs of his district, but is usually the central power in every educational, literary, and hygienic interest involving the welfare of the community.

The simple title of "Doctor," however, does not by any means carry with it a passport into social life, or give him a

position above that to which his education, habits, and gentlemanly conduct entitle him. It is in the reciprocal relations of the medical profession to the individual that a field is to be found for the highest cultivation of the noblest instincts of our nature. The constant care of the sick, the suffering, and the dying cannot but imbue the conscientious physician with an appreciation of the greatness of his mission and of the responsibilities he assumes. In the comfort, health, and lives of those committed to his care, he is answerable to the solemn tribunal of his own conscience for carelessness or neglect of duty.

A thorough preliminary preparation, and constant efforts for the accumulation of knowledge by research, careful observation, and experience, can alone qualify and render his life serene, in the consciousness of having faithfully tried to fulfil his professional obligations as a public trust.

The relations between the physician and his patient are necessarily and so often of an intimate and confiding character, that the small aggregate of cases of misplaced confidence is a compliment to the integrity of our profession. This relationship involves the strictest rectitude, and every moral attribute of the Christian gentleman.

The virtues above all others that a physician must possess are self-denial and self-devotion, not only to carry him through the slights and crosses in his career, but also to exalt him above all and every sort of temptation, that he may always be the perfectly reliable repository of personal and family honour. This reliability is the most essential quality of the physician's character. No talent, no skill, no genius even, can compensate for its absence. But the multiplied public and private relations of our profession are known to us all. Happy indeed are we if we faithfully strive to guard the trust committed to our care.

Our duties are arduous, peculiar, and responsible, and no illegitimate considerations should divert us from their strict performance. If the physician's best services are not always appreciated and rewarded, if he may never hear the resound-

ing applause of the populace which follows the spasmodic efforts of the orator or statesman, nor his pathway be strewn with flowers like the returning conquering hero, yet if he has conscientiously and with fidelity tried to do his whole duty to those committed to his care, when he comes to give up his stewardship he may hear the welcome plaudit, "Well done, thou good and faithful servant."

To the *society organisations* of the medical profession of this country we must look for the effective and permanent influences which have been exerted, giving to it as a body vitality, power, and character. The English of an old Greek proverb, that "One man is no man," concisely expresses the great truth that man is never independent of his fellow-man. The development of his physical, mental, and moral capabilities cannot be effected alone, nor can the great purposes of life for which he is intended be accomplished, and the comforts and happiness which he is constituted to enjoy be realised, without the coöperation and companionship of others. However humiliating this reflection may be to man's feelings of self-sufficiency and self-complacency, he is forced to acknowledge its truth when he observes the progress of individuals and the advancement of civilisation. The advantage and even the necessity of association for the promotion of useful knowledge have been so generally recognised that "learned societies," consisting of intellectual men voluntarily united for this purpose, have been formed and continued for many generations, especially in the old world, under names indicative of the particular branch of human learning they have been designed to promote.

The objects of these associations have not been simply the acquiring of knowledge, but the more useful one of communicating it, in announcing discoveries, deducing general laws from numerous facts, correcting false theories, and rendering knowledge more accessible and useful. A society is none the less entitled to the appellation of *learned* if it be quite professional, and if its plan be not as comprehensive as that of the Royal Society of England, which is intended for

the promotion of general literature, philosophy, and natural history.

When we see the most distinguished physicians in Europe and America, those who have done the most to enlarge the boundaries of our knowledge, standing shoulder to shoulder as originators and active supporters of associations, believing them necessary for mutual improvement and the advancement of medical science, the medical men of this day, young and old, may well distrust their own judgment if they are inclined to doubt the utility of medical societies. There are abundant reasons why the medical profession should enjoy the full benefit of associated talent, and feel the influence of a liberal, enlightened, and earnest consideration of the various topics which must claim the attention of the physician. With the great advantages we possess, we should, as associations and as a profession, strive to develop our science more rapidly and more perfectly in the future than it has been developed in the past, and that our progress should be more marked in all that relates to the higher aspirations of our calling. The period in which we now live demands an intelligent and catholic spirit, as a pervading element in the whole body, so that the improvement in the science shall correspond with the progress of our race, in all that is great and worthy of the age. May this Association be the grateful agency in the unification of the members of the medical profession of the state of New York, in all that relates to their honour, to their interests, and to their usefulness.

With the incentives to society organisations, there arose a more formal recognition of the *ethical spirit or moral tone* which should pervade and control the profession. It became an important part of a medical education, and included, not merely medical etiquette, but rules for the guidance of the physician in all the relations into which he might be called by the practice of his profession. Without arrogating too much, and within the bounds of modesty, we may assume it to be probable that not another equally numerous class of men can be found who more rigidly and tenaciously adhere

to rules of an ethical character than is done by the medical profession of this country. Admitting that there are exceptions, there is a disposition on the part of the regular profession of medicine to foster and protect the interests of each other, and, with a commanding moral tone, to frown upon and discourage every immoral practice and all vicious conduct among its members, believing that the greater the trust the greater is the betrayal.

Referring to the *legal status* of the medical profession of this country, it may be said, with some exceptions, that legislative enactments regulating the practice of medicine have been in the main salutary, and if thoroughly enforced may be productive of much good to the profession and of safety to the people. The highest interests of society require the adoption and enforcement of such legal regulations as will ultimately insure a high standard of education and mental discipline before entering upon the study of medicine, as well as efficient methods of securing the attainment of a fair standard of professional qualification before receiving a license to practise.

The regular medical profession do not ask of the state special privileges and immunities. No: they ask that society should exact greater guaranties from them, and that a still higher standard of qualification be demanded; they ask that the public should take earnestly in hand, for self-defence, means for repression against the horde of impostors who trade on public credulity; they ask that both the secular and the religious press, the clergy and men of position and influence, should consider well the moral responsibility they assume in the thoughtless or intentional commendation of the plausible quacks and their worthless nostrums.

It is, however, the pervading *spirit of scientific investigation* in the medical profession that has marked its career in the past, and is leading it on with rapid pace from discovery to discovery, from victory to victory, over the forces of Nature in the production of disease, alleviating the physical sufferings of humanity, rescuing from preventable disease and from

untimely death. There is nothing more satisfactory in the present aspect of medical science, or more likely to raise it above the region of empiricism and place it on a higher scientific standard, than the efforts now being made to render our knowledge more definite and exact; nor are signs wanting which point to the probability of such a consummation. We see, on every side, the more rigid application of the inductive method of investigation brought to bear on the great problems of medicine; and we doubt not that the observations which are being carried on by earnest workers, especially those conducted under the plan of collective investigation, and by original research, will ere long bear still richer fruit, leading to generalisations of the most important character, largely increasing our powers of differentiating between the variations which disease presents, finding diagnosis and prognosis made more easy and exact, and treatment more successful. The spirit of scientific investigation, which is becoming so characteristic of the present period in the history of our profession, must have derived an impetus and a beneficial influence from the more active cultivation of the physical sciences, which has lately assumed an important and proper position in the educational curriculums of the higher schools, academies, and colleges of our country.

Resting, as medicine does, on a basis of scientific observation, and depending for its advancement on research and the practical application of discoveries in science, it is intimately associated with the development and progress of other sciences. In fact, there is scarcely anything in the whole range of nature or art which the physician may not make use of for the purposes and accomplishment of his work. There is also another and not unimportant circumstance connected with the more general cultivation of the physical sciences, which is destined to exert a beneficial influence upon the status of our profession: I refer to the higher and more intelligent estimation in which the scientific physician will be held by the public at large. In proportion to the general diffusion of scientific knowledge in the community, there will be estab-

lished for our art a recognition of its just claim on the confidence and gratitude of mankind. But the crowning glory of the medical profession is its *opportunities for the prevention of disease and for the prolongation of life.* Herein is consummated the responsible trust committed to our profession. In the economy of the State, seeking for the preservation of the health and lives of all classes of citizens, it becomes necessary to enact sanitary laws and to enforce obedience to them; but in order that the people may know just what to do, and how to protect themselves from the ravages of pestilential disease, State boards of health are created for the express purpose of diffusing the needed information. Sanitary laws are simply an application of the science of medicine, in the form of remedies or preventives, to the people of the state. They teach not only the inestimable blessing, the life-giving and life-preserving influences, of glowing sunshine, pure air, pure water, and wholesome food, and the importance of ventilation, drainage, disinfection, and vaccination, but also the absolute necessity of a proper use of these great gifts of nature, chemistry, and discovery.

It has long been recognised as the peculiar province of the medical profession to aid the authorities and recommendations of the State in all matters connected with public hygiene; and especially is this true in the efforts to avert an impending scourge, or to abate the ravages of those terrible epidemics which destroy life with the fearful rapidity of a tornado, whose pathway is marked with desolation, and which, while they continue, strike a whole community with terror and dismay. The sacredness of human life and the inestimable value of health are incentives that can always be relied upon to secure the coöperation of all true physicians in every matter relating to the sanitary condition of the State and the lives and health of the people. It is in this relation that our profession can best reciprocate its obligations to the public, and honour the trust confided to its keeping. There is indeed a vein of chivalry in the medical profession. It heeds the cry of suffering from the poor and lowly, and no

pestilence-smitten city has ever made an appeal for aid without meeting with a quick response. It has no secrets, no patents, but always holds its gifts of healing in trust for the public good. But busy as we are with the demands of an exacting profession, it is quite possible that many of us have failed to recognise in its true character that other and important trust, the service that we could render the community by diffusing among the people, by every available method, pertinent, reliable, comprehensive, popular, sanitary knowledge.

Medical philanthropy and enlightened statesmanship have made success possible for a grand sanitary movement throughout this country by organised effort against preventable disease and unnecessary death, against the ills which torture humanity and enfeeble the State. The individual physician, each in his own sphere a power, has been foremost among all the agencies to mould public favour for organised hygienic work. United in their influence, physicians have inspired confidence, and a willingness among their patrons and neighbours to coöperate with them in their efforts to discover and remove the preventable causes of disease from their midst. When we cannot legislate we can still teach; when we cannot command we can still warn; and neither the existence nor absence of power, neither the expediency nor inexpediency of interference by the proper authorities, can exempt us from the duty of knowing what is amiss in the sanitary condition of a community, and diffusing that knowledge far and wide.

Undoubtedly the first and most important step is the education of the masses in the essential facts of sanitary science. There never was so teachable a people as our own. The respect for science is wide-spread among them, and our public education has made a large body in every community sufficiently acquainted with the elements of science to receive with profit its practical application in matters of life and health.

The medical profession can best promote sanitary progress

by aiding in the dissemination of information as to the established facts of the etiology and protection from preventable disease, and the inevitable consequences of disregarding them. This can best be attained through sanitary associations and publications, and especially by calling to our aid that important agency and instructor, the secular press, which has indeed become in this country for the citizen what the school is for the child. Groaning night and day under the weight of its mighty energies to keep pace with the advancement of civilisation, commerce, science, art, and the social, political, and religious activities of the age, the press wields the mightiest power for influence in the land.

It is characteristic of the American mind, in its inventive genius and practical application, to utilise every power within its reach, to make every agency subservient to its interests; and there is no nation on the globe where the masses of the people absorb so much reading matter from the infinite variety of publications. The newspaper in this country is not only one of the luxuries, but almost a necessity, in every family. It is true it has its shortcomings, and some objectionable features in its tendency to sensationalism, and often its *quasi* advertisement of quackery in its apparently editorial endorsement of the wonderful cures of some secret or patent medicine; yet it is undoubtedly an institution of the greatest value and power for good, and should be utilised by the medical profession and sanitarians in the diffusion of hygienic knowledge among the people.

In the furtherance of this thought I offered some suggestions in an address which I had the honour of delivering at the annual session of the Third District Branch of this Association, in June last, on "The Popularisation of Sanitary Science," and which, with your indulgence, I desire here to reproduce.

My proposition was this: "That the medical organisations of this State shall be invited to appoint annually a special committee on 'Popular Sanitary Science,' whose duty shall be to prepare or supervise familiar articles for the secular

press on subjects involving the care and protection of life and health of the individual and of the community, in accordance with the accepted principles of sanitary science. That State and local boards of health shall also be solicited and urged to publish, for free distribution through the medium of the public schools, tracts on practical sanitation."

From some such plan as I have thus indicated, or the organisation of a central bureau or council of hygiene and public health connected with this Association, there would emanate a flood of light, and practical knowledge instructing an intelligent people in the principles, truths, and proper application of sanitary science, making possible a grand sanitary movement against preventable disease, and thus fulfil and magnify the trust committed to our profession.

It is fitting that this Association, having a community of sentiment relating to the honour, the interests, and the usefulness of the medical profession, and within and around it the elements of permanency and success, should take the initiative step, and afford an example worthy of adoption throughout this whole country. Whatever of progress there may be in the coming century in the advancement of our science in all that truly appertains to its highest mission, it will all emanate from a spirit of honest purpose, of profound study, of patient research, and a full recognition of the obligations resting upon each member of the medical profession as a public trust.

ADDRESS ON MEDICINE.

PROGNOSTICS IN MEDICINE.

By John Cronyn, M.D., of Erie County.

October 22, 1890.

"The human body, constructed by art altogether divine, performs many and wonderful functions." So wrote Gregory one hundred and fifty years ago, and we can easily imagine him first giving expression to this incontrovertible sentiment, perhaps in face of the remarkable fulfilment of some equally remarkable prognosis, or, it may be, when confronted by events for which his judgment had in no wise prepared him.

How much more than he do we know of these wonderful functions? Amid the unparalleled activities of this nineteenth century, physiologists, too, have been busy, inquiring into, experimenting, reasoning, and determining their diverse operations. The anatomist has occupied himself in endeavouring to demonstrate the intricacies and beauties of this construction, this product of art "altogether divine," which yet, like everything in nature, is subject to laws that vary with the influences surrounding it, these too often being of a character unfitting it for the healthy performance of its "wonderful" functions. The pathologist minutely describes those changes that take place in the tissues of the body, or of parts of the body, involved either as cause or effect; and the extent of change forms the measure of danger to life. The sum of knowledge represented by researches of scientists in all these departments, with the added learning and experience peculiar to himself, must form the basis upon which every physician establishes his ability to discern

and foretell, in each individual case that challenges his judgment. And if, for the elucidation of doubtful scientific data, it be essential to travel to the ends of the earth in order to prove a present fact to apply to a future condition, as in the astronomical inquiry or observation of the transit of a planet a few years ago, how much more compelling to the medical mind must not be that art which concerns itself with the duration of a human life, or the possible reconstruction of a body moulded by "art altogether divine." Although every text-book has its paragraph on Prognosis connected with each disease, no work regarded as at the same time authoritative and exclusively devoted to prognostics has been written since the days of Hippocrates; nor does any writing of the present day present so complete a conception of Symptomatology as the "Prorrhetics," "Coacæ Prænotiones," and "Prognostics" of that wonderful man of Cos. For my own part, while calling your attention to the immense value attached to such observation and clinical deduction therefrom constantly being presented in health and disease, I shall not pretend to offer you much original matter, but will dwell somewhat upon facts perfectly well known to all, merely because they afford me the frame in which to exhibit two or three practical ideas of *treatment* as influencing prognosis. I trust you may find them worthy of your consideration.

A biographer of Hippocrates, dilating upon the importance attached to prognosis as one of the most distinguishing characteristics of the Hippocratic system of medicine, avails himself of the opportunity to say that "the physician who cannot inform his patient what would be the probable issue of his complaint, if allowed to follow its natural course, is not qualified to prescribe any rational plan of treatment for its cure."

We stand almost aghast before the power of that foreknowledge which enables the medical man not only to decide, in any given case of disease, its probable duration, curability, danger, complications, recurrence, etc., but also to bid the sick more rapidly to recover, and the dying to prepare for his

end. The confidence it compels, and the opportunities it gives the physician to prove the value of his calling, the high and noble honesty of his words, cannot be questioned, any more than the propriety of cultivating to its utmost all the ability needful to the judicious exercise of this art of prognosis. The qualifications and attainments essential in this may be said to comprehend those which give superiority in other departments of medical science. There are some, however, more peculiarly requisite. As a foundation, the accurate discrimination of disease is indispensable, and, therefore, the habit of close observation, and the most extensive knowledge of semiology as deduced from pathology, upon which only can a correct diagnosis depend. Yet on many occasions this will prove a very inadequate guide to the prediction of ultimate results.

The difficulties inseparable from the subject, and the many sources of error and disappointment with which it abounds, are often painfully forced upon the attention of the physician, and hence he will be wise to surround with caution his prophecies. Blessed Saint Certainty is not the patron of medical men! It is too well known that sometimes the most formidable symptoms occur when there is but little danger, while in the seeming quiet of convalescence the greatest danger lurks. He who thinks well, then, of his own reputation and of the welfare of his patient will shrink from a rashness of prediction that would bring misfortune to both. The increase or diminution of prominent symptoms will generally present the most obvious means of determining results; and yet it has often happened that symptoms the most distressing, attributed to the beneficent action of the "*vis medicatrix naturae*," and making for recovery, were but a prelude to the most fatal consequences. The anasarca, for instance, which sooner or later attends most organic diseases, the colliquative sweating, sputa, and diarrhoea of phthisis, and the saccharine urine of diabetes, cease in the final stage of these maladies, only to be succeeded by death.

We must be equally prepared for disappointment when

disposed to rejoice over seeming improvement and rallying of vital energy in some acute diseases, as in puerperal peritonitis, inflammation of the brain, and certain forms of fever. Experience shows, furthermore, that the disappearance of one set of symptoms is but the precursor of others equally, or more, to be feared. An excellent example is found in the hot and cold stage of ague, and in the cessation of asthma and enlarged cervical glands previous to pulmonary phthisis. On the contrary, the most violent evidences of acute disease very commonly precede a favourable crisis, while the crisis itself consists in the appearance or aggravation of some circumstance which, either in kind or degree, is essentially morbid. Its seeming growth or diminution cannot, therefore, always be relied upon to indicate the end of a given malady, and, perforce, we must fall back upon the material accumulated for us by experience. No less in prognosis than in treatment, experience bears a twofold character. In one phase it leads us to expect a certain happening as the result of certain existing circumstances, simply because it has been generally observed to follow them; and in the other, it serves as the basis of those "generalisations and deductions which constitute the science of pathology."

I have already alluded to the manifest necessity of correct diagnosis as a preliminary to any prophecy of results, and in the order in which I have named them the curability of a malady is the first object of prognosis which we proceed to consider. Between diseases apparently quite beyond the healing power of nature or art, and those in which a cure can be almost certainly promised, we find innumerable differences, degrees of danger, and doubtful eventualities. Many cases which, accurately speaking, must be considered irremediable, since the structure of the part affected cannot be entirely restored, may yet practically be deemed curable, because the lesion, though permanent, is arrested, and gives no special inconvenience. Who, of any years and experience, has not seen, time and again, illustrations of nature's marvellous law of compensation?—one lung, or one kidney, doing

duty for two far into a fairly comfortable maturity; or a heart that has repeatedly brought its owner, in youth and middle age, to "death's door," still pumping away vigourously years beyond the allotted three score and ten!

Most forms of idiopathic fever are curable, since it is their usual character to have a more or less determined course and duration, and thus to cease spontaneously when not fatal. Such varieties as are in so high a degree fatal—yellow-fever or cholera, for instance—can scarcely be considered under the heading "Curability." Symptomatic fevers naturally presuppose a prognosis made with reference to their primary cause. We all recognise, I think, that acute inflammations of themselves are not incurable. In many of them the danger lies in their tendency to results which constitute organic disease, often wholly irremediable. But even one of the principal of these results, viz., the formation of false membrane in the serous membranes—in the later stages beyond the reach of art or nature, pathologically *incurable*—is in reality seldom seriously disturbing to the patient (pleura-pericardium). A very different prognosis is called forth by the much rarer so called "false membrane" of inflammation of mucous surfaces, where the united action of muscular contractions and mucous secretion generally detaches and expels this so called "membrane," unless, as so often happens in true croup, its presence speedily causes death. But fibrinous membrane cannot, in my opinion, be formed on a mucous surface.

Permanent and incurable adhesions in these surfaces are then of rare occurrence. Laennec thinks that the hepatised state of the lungs consists in effusion of coagulable lymph into the air-cells, and he apparently regards it as removable by the powers of nature in every stage of its progress.

In iritis there is a great tendency to the formation of organised adhesions, for which a surgical operation is the only resource. Those effusions which take place in the cellular and white fibrous tissues in inveterate gout and rheumatism appear to be almost wholly incurable.

Ulceration, suppuration, and gangrene, as results of acute inflammation, must be regarded as curable, or the reverse, always relatively to their degree of advancement and the idiosyncrasies of the sufferer. In gangrene reparation is hopeless, although when life is preserved nature sometimes achieves what may be called a cure by the separation of the diseased part.

Of the *profluvia*, none is in itself incurable, but every one may be, and often is, so, from being symptomatic of some organic disease. The same may be said of haemorrhages, when they are not so profuse as to be fatal. Here, again, even where effusion is such that the structure of an organ is permanently injured, there may follow scarcely any appreciable morbid effects. The fact that most forms of dropsy are symptomatic of some organic trouble is not enough, I think, to account for their intractable character. Chronic hydrocephalus, ascites, and hydrocele, often idiopathic, are not very amenable to *medical* treatment, while anasarca and hydrothorax, even when symptomatic, frequently yield to diuretic and other remedies. The influence of medicine upon hydropericardium and oedema pulmonum ought to be sufficient to give to the unbeliever confidence in the trial.

Inveterate cases of syphilis, mercurial disease, and scrofula in its various forms—tuberculous disease generally—are extremely difficult of cure, while diabetes, notwithstanding the numberless remedies proposed and tried, remains still the most hopeless of any. In chlorosis, on the contrary, and in scurvy (when circumstances can be reversed), recovery is fairly certain.

In hypertrophy, atrophy, ossification, cartilaginous degeneration, new formations, etc.,—in fact in all those maladies which may be ranged under the head of *organic disease, lesions, and other changes of structure*,—the first two named of course demand a prognosis which varies greatly with the tissue affected. The remainder admit of slight, temporary relief only, excepting such new formations as permit of extirpation by surgical means, and dilations of the hollow

muscles and canals. The latter, I think, are much oftener curable than they are cured. When we come to examine into *functional affections of the nervous system*, it is my experience that several among them, under older methods of treatment, justified a more favourable prognosis than their now too frequent fatality will allow us to venture upon. Apoplexy, for instance, sends many a man to his grave because blood-letting is no longer fashionable, and we are afraid of the lancet.

Let me digress a moment here, gentlemen, to say that in many ways I am very conservative. I am willing that conservatism shall stand for "old-fogyism," if you like, rather than for narrow-mindedness; but *I* define it to mean caution, prudence, unwillingness either to throw aside, because it has been abused, a curative agent proven valuable by years of experience, or to accept unqualifiedly or discard a new remedial process until its usefulness has been fully tested. In pneumonia, also, the mortality to-day is greatly disproportionate to the recoveries which our advanced medical science entitles us to expect.

No real remedy is ever obsolete. Epidemics peculiar to certain latitudes, during long periods extinct or dormant, may arise at any moment, and call for treatment proven useful generations before. Variations, changing modes of life, constitutional peculiarities, demand corresponding variations of treatment; but points of similarity are never wholly absent, and sometimes, at long intervals, a precisely identical condition of person or surroundings presents itself.

Now, since prognosis depends not only upon a correct diagnosis, but upon the expected action of some alleviating or curative agent, it follows that the physician must be as familiar with the matter and action of his remedy—more particularly when it is a drug—as he is with the subject of his treatment.

This seems to be a proper moment in which to speak of a relation between the circulation and the action of medicines, of which I do not remember to have read anywhere any mention whatever. That is, the extreme urgency of a case

given, the prognosis of which to fatality is almost certain, what calculation may be made to insure a possible prevention thereof? Here it is: the circulation makes its course through the body in a healthy individual in twenty-three seconds. When the pulse is seventy-two, the volume of the blood is here equal to one thirteenth of the body weight at say one hundred and thirty-five pounds. Now, this is entirely changed by the condition of the case, and medication should be based upon this physiological change, to obtain such results as may assist or postpone the fatal issue.

The obscure pathology of certain forms of paralysis obliges us to exercise great caution in our prognosis, as the most unlooked for cures, both as regards time and manner, often occur. Aphonia, if we consider it as a form of paralysis, gives a striking instance of the uncertainty of prognosis in such affections, sudden and entire recovery quite frequently surprising us after years of obstinate resistance to remedies.

The prognosis in epilepsy is on the whole bad, although much depends upon the age at which this disease assails its victim. Hysteria, catalepsy, and chorea generally succumb before judicious treatment, as does also delirium tremens at the present day. In hypochondriasis, as, indeed, in most functional affections of the nervous system, psychological complications, unknown quantities, are so often to be dealt with that results are doubtful in the extreme. Nowhere is the unreliability of pathology as a guide to prognosis more apparent than in relation to this class of maladies.

The neuralgiae are fairly tractable, although here, again, prognosis is much influenced by the particular seat of the pain. Spasmodic asthma, palpitation, and angina pectoris, even in the absence of organic disease, are to be regarded with very little hope of a perfect cure. Nearly all varieties of functional disorder of the digestive organs are obstinate rather than incurable. The ischuria renalis, however, except when a symptom of hysteric affection, is so often fatal that an unfavourable prognosis is in most cases justified.

The estimate of danger in diseases not absolutely void of

peril to life, nor yet so often fatal as to cause serious alarm, must naturally depend upon the particular circumstances of each individual case. The diseases which occupy the two extremes of the scale, *i. e.*, those which are very commonly fatal, and others as commonly the opposite, may be briefly considered, chiefly for the purpose of inviting your attention to the effect of a certain medicine upon one of them, both as diminishing its mortality, and, when life is preserved, preventing permanent disfigurement. The prognosis is unfavourable in all cases where disturbed balance of the circulation and a morbid state of the circulating fluids proclaim a sudden and overwhelming shock to the whole system; in all instances where inflammation, or other considerable disease, attacks organs of great importance to life, or having extensive sympathies; in affections which are fatal chiefly because of the almost certain supervention of a secondary ill; and in others whose fatal tendency may be explained by the peculiar condition of the system at large rather than by the seat or intensity of the local malady, as, for example, in puerperal peritonitis. To diseases classified and generally recognised as seldom fatal I need not allude. The disposition to fatal results seems in some diseases to be owing rather to the kind of morbid change, or to its extent, than to the importance of the organ affected.

Of the first kind of cause we have illustrations in gangrene generally; of the second, in extensive peritonitis, confluent small-pox, etc. To the latter disease, that is to variola, I alluded a few moments ago when intimating that I should ask you to examine into the claims of a particular medicine as most positively affecting results. If only at long intervals epidemic, we still have sporadic cases of small-pox sufficiently with us to be of decided clinical value, and compel constant watchfulness. Notwithstanding its own special prophylaxis, and all our general sanitary reforms, as in pneumonia, the percentage of deaths is still disproportionately large, and, from my experience, I partly account for this by the fact that all the latest writers upon the subject—who I infer are fol-

lowed in their opinions by most practitioners—insist that, in the words of Bartholow, "All specifics may be dismissed with the assertion that they have, one by one, proved worthless, from sarracenia to zylol." Tanner (Broadbent) remarks that sarracenia purpurea had been tried "owing to the statement of Dr. Chalmers Miles that it was regarded as a specific by certain tribes of Indians, . . . but had been found to exercise no influence whatever on the disease." My own experience with sarracenia is so entirely the opposite of that described by these and other distinguished authorities, that I cannot forbear citing it, hoping for further light upon the reasons of these extremes of success and failure.

Eighteen years ago we had a severe epidemic of small-pox in Buffalo. I was very busy, and saw several cases of the disease every day. From the beginning to the end I administered in all the cases sarracenia, with the result of shortening the duration of the different stages, the prevention of secondary fever, and of pitting.

In Toronto, a like experience occurred in the practice of Dr. Richardson, who published the results at the time.[1]

The distinction made between the appearance of new symptoms during the progress of a disease, and the supervention of new diseases, is sometimes very obscure, depending as it does upon the fact of such symptoms or circumstances being or not being recognised by nosographers as separate diseases. Those which are not generally admitted as such can be arranged under the heads, *critical*, *non-critical*, and *intermediate*. Here we have to remember that a particular circumstance critical in one disease may be non-critical in another, or even in a different stage of the same; also the distinction of their indicating at one time the permanent removal, at another merely the temporary disappearance, of a disease. Why, in affections like continued fever and acute inflammation, for example, one symptom or circumstance is critical rather than another is a question not satisfactorily answered. The constitutional predisposition of the individual, and the character

[1] Mic-mac, and patent medicine ad.

of the disease in regard to the organs or functions most prominently disturbed, may indicate something; but otherwise there is little beyond mere experience of the prevailing tendency to guide us in the anticipation of the special circumstance which is likely to mark the solution. It is possible in many cases to predict with a fair degree of certainty the occurrence of circumstances which, though they do not denote the cessation of the malady, generally imply a measure of relief. The supervention of new diseases, inasmuch as it may be looked for, must necessarily bear a positive relation to the duration of a malady, and thus affect the prognosis at the very outset. The disappearance of a primary affection, and the development of a secondary one, may be simultaneous, or there may be an interval between the cessation of the first and the advent of the second, or they may coëxist. I think it may be generally assumed that when the primary disease is acute, the supervening one usually supplants it; but when it is chronic, they go on together. Local inflammation, following a great degree of vascular disturbance of the system at large, disease of the gastro-intestinal and bronchial mucous membranes coming upon chronic affections of important organs, and anasarca induced by protracted fevers, are examples too frequently met with to require more than a mention.

However uncertain the prognosis of duration of diseases may be, it is, at least to a considerable degree, determinate in a few acute affections which I need not name. But even when our predictions are aided by the reasonably positive data of "critical days," individual peculiarities and surroundings must be regarded, more especially, too, when the nature of the disease itself throws little light on the question of its duration. I may say just here, that the medical man who, in viewing all possible contingencies, forgets to enumerate the apothecary, forgets an important factor in the verification, or the contrary, of his prognosis. Drugs are not always pure, and we only find it out when a prescription fails to accomplish what we expect of it, and what the same

remedy performed before under precisely the same condition of the patient; or a substitute, so called, is supplied in the absence in stock of the drug prescribed, with the usual consequences.

The practical application of our knowledge of the liability to the recurrence of disease under any of the circumstances which usually induce it, consists principally in the avoidance of the occasional and exciting causes, since the permanent and predisposing ones are, for the most part, beyond our control.

And now, gentlemen, if I were writing a text-book, I should in all likelihood proceed to a further examination of prognosis as dependent upon peculiar circumstances of individual cases, and then conclude my paper with a description of all those *particular* symptoms which Hippocrates first so luminously set forth as indicating either death or recovery. With a few eliminations, his signs of speedy dissolution serve the medical prophets of to-day as well as they did his immediate successors. But in the knowledge and discernment of these symptoms of expiring vital force, the wisdom of the wisest is shared by every old wife who has watched for years by the bedside of the dying. It is more to the illustrious Greek's capacity of foretelling a cure, or the conditions of improvement, that his modern followers bend respectful heads, while feeling that later and contemporary scientists have herein largely improved upon their model. But I am not writing a text-book, and I have tried your patience with my dwelling upon facts so perfectly well known to you—many times expressed even in the very words of remembered reading of long ago—simply that I might suggest two or three things of *practical* import to us in considering the relation of treatment to prognosis. Let me add, for the benefit of my youngest colleagues, that much is yet to be learned in medical science. A profound study of the anatomy of parts, of physiological functions and the relations they bear to health and disease, all the treasures of experience preserved to us from the past, keen individual observation, daily,

patient research and profit of every present opportunity, represent the sum of knowledge, always growing, with which the man should be equipped who assumes to guard this temple of the spirit which we call the human body—this marvellous structure built by an "art altogether divine."

SOME PERSONAL OBSERVATIONS UPON THE CLAIMS OF HYPNOTISM, AND ITS EMPLOYMENT IN CERTAIN DISEASED CONDITIONS.

By H. Ernest Schmid, M. D., of Westchester County.

October 22, 1890.

It has always been my opinion that for any member of our medical societies to read a paper on some rare disease is useless, and hence foolish. No man can be of benefit to his colleagues by such literary work as long as he is not able to make original researches in connection with his particular subject. I have therefore urged, or endeavoured to urge, upon the members of our county society, the importance of practical papers dealing with those ills of humanity with which we, as daily practitioners, are most frequently confronted.

On first view it will appear, then, that I bring this subject of hypnotism before you in contradiction to this opinion. But this is only apparently so. In reality, I feel justified in saying that to speak to you of hypnotism is *not* like bringing to you some compiled account of a rare disease; for even according to my own individual experience with this as a scientific, accepted, and new therapeutic means, do I feel certain of being able to prove its value beyond doubt, especially in these days of neuroses of all kinds.

But I desire to say to you in advance, that this, my own experience, is still a very limited one. It is more to induce you, my colleagues, to investigate the subject for yourselves, and not to let prejudice induce you to sneer at and despise it, that I have taken courage to bring it before you; otherwise have I approached the task with great timidity, and I do not hold myself able to discuss it deeply, or explain it in all its

strange varieties. I trust, rather, that in its discussion, now or at a later time, I shall learn something more about it myself, for in the discussion of a topic, brought before any society, lies after all its greatest usefulness for the practical physician. And yet, to make discussion of a subject valuable, it must be carried on by men who, by study and experience, are best acquainted with it.

If my paper is to stimulate my hearers to an investigation of its contents, so that at a future meeting of this honourable Association a profitable discussion can be held, I shall be more than repaid.

I confess that not a very long time ago I held hypnotism in derision—an opinion,—I might as well admit it,—based upon ignorance. But unmistakable results have so greatly changed my views that I have come to speak a word in defence of what I formerly almost ridiculed.

It is impossible, nowadays, to set aside what has been investigated and accepted by some of the most prominent and scientific men in Europe. And yet there clings to it in the eye of the general practitioner so persistent an aspect of charlatanism (by which it so long was claimed as undisputed property), that he persists in viewing it with suspicion, and fears being ridiculed were he to handle it.

Nobody hesitates to admit freely the influence of the body upon the brain. Eminent alienists maintain that no diseased state of the mind ever exists without a pathological condition of some portion of the brain. Why should we then hesitate to admit the influence of the mind upon the body?

All great advances in the natural sciences have been made by somebody's daring to make a stand against some existing opinion, even at the risk of drawing upon himself the curse of ridicule. Is it necessary to remind you of the years of fighting against the prejudices of his colleagues that Harvey had to live through before he secured recognition of his great discovery?

And shall we look down upon hypnotism because we cannot understand its innermost essence? What, then, will

become of all psychical processes, which we admit and yet cannot fathom? Has anybody been able to explain how the fecundated egg, which is without a soul, develops into a being with a soul? Has it ever been explained by what subtle means the brain sends its command to contract, along a nerve fibre, to the muscle? Theories never come before facts, but facts are the forerunner of theories.

When we reflect upon the latest achievements of science in other directions, it becomes an easy matter to broaden the foundation upon which we stand by admitting that what has been accomplished seemed far more improbable than the claims of hypnotism.

I have now for years become familiarised with the telephone, and yet I still often look at the telephone wires as I drive past them, and marvel at the idea that through these wretched little filaments of iron I can speak across great distances and be heard, and hear in return. And I cannot keep from thinking how a few hundred years ago the man who might have made and used this remarkable instrument would thereby have been in danger of his life by being considered as dealing in black magic. To bring together the darkness of former periods with the light of the many discoveries of our own day would be like copying Jules Verne's story of Captain Nemo. But the future no doubt holds in store for humanity many greater discoveries, which will, in comparison, make our own present light fade away into as great a darkness as envelops the centuries prior to our own. I certainly *cannot* believe that the man lives who expects to see the limit reached in invention and discovery. And I certainly *do* believe that the unknown or border-land, in which live the yet nameless but not impossible things of Captain Nemo's devising, contains for us far more marvellous developments than have up to the present moment astonished, delighted, and benefited the human race.

Look for one moment upon the delightful radiance of an electric incandescent light, and then replace it with an ancient rushlight! Is not it alone sufficient to make one conscious

of great ignorance? For, magnificent as is the gradual development from that first feeble luminary to this most brilliant one, how much more is known (with all the practical achievements and uses we have learned to make out of electricity) than was known of its nature some 2,000 years ago? This single fact teaches us again the old saying, "The *more* we *learn*, the *more* we *realise* how *little* we *know*." And it is this consciousness of our ignorance which has given so great an impetus to the creation of the specialties of to-day. Knowledge has piled around us its treasures so high that the student of the hour is forced to be content with exploring a circumscribed domain of science. And so has hypnotism been made by some a specialty at once,—hypnotism, an old thing in a new dress.

It is an acknowledged fact that intellectual and moral phenomena can be communicated to others, not by a microbe, but through that imitative faculty which all men possess to a greater or less degree. Are we not all familiar with the fact that a panic during a battle has been known to extend to the stoutest hearts? Do not our sympathies go out to the poor victims of the suicidal epidemics which have cropped out in many places, and of which it has been said that they had become a part of the day's doings?

Dr. Ebrard wrote a most interesting monograph on suicide as a recognised pest, and speaks of it as propagated by a moral contagion. Such as doubt this view of it I would refer to the dreadful epidemic of it in Lyons, where women, weary of life, threw themselves in crowds into the Rhône, or to a similar one in Marseilles, or to the great one in 1806 in Rouen.

Every one knows of the suicide of the seventeen invalided soldiers, inmates of the Hotel des Invalides in Paris, who in 1772, one after the other, in rapid succession, suspended themselves from the same hook in a dark passage of the building. By the advice of Sabatier the hook was removed, and a window broken in the opposite wall, and the suicides ceased.

Just so it happened under the first Napoleon. A soldier committed suicide in a sentry-box, and a number of other soldiers followed his example in the very same box. The emperor ordered the burning of it, and again the suicides ceased.

An English nobleman, weary of life, threw himself into the crater of Vesuvius. His example found numerous followers, till the government placed guards to prevent any more fatalities. A friend of mine being in Paris in 1883 desired to ascend the Vendôme column, but found the entrance closed by order of the police, on account of the increasing number of suicides committed by persons precipitating themselves from the top of the column. The church of Notre Dame, the isolated tower on the Hradschin in Prague, and the so called "monument" in London, all furnish similar examples. In Brazil the negro slaves have at times poisoned themselves by the score,—not because they were badly treated, for on examination it was ascertained that slaves who had hard masters were not found amongst the suicides, but simply because they were afraid of them.

Timon, the misanthrope of Athens, had a fig-tree which became famous on account of the number of persons who committed suicide by hanging themselves from its branches. One day, when the populace had a meeting, Timon, the ever quiet, ascended the platform. Everybody was in astonishment at this, and anxious to hear him speak. He said,—"Athenians, I have adjoining my house a little yard in which a fig-tree stands. Several of my fellow-citizens have hung themselves from it; but since I now propose building upon that piece of ground, I shall have to cut down the tree, and I want to notify all of my intentions, that those who would yet wish to suspend themselves from it may hurry to do so, before the removal of the tree has been accomplished." I do not quote this last fact from the writings of Plutarch on account of the ghastliness of its humour, but mainly to show how human nature has been the same since the beginning of the world.

Are we not acquainted with the fact that the folly or awkwardness of some people has produced disease in some, or at least intensified it? To tell some people that they *look* sick, will make them sick. I recall with regret now a prank which I with several young friends used to play at different times on an extremely imaginative and impressible man in my native town, which always made him so ill that he went to bed and sent for the doctor. We simply placed ourselves at various points along his route to his place of business, and stopped him, asking him how he felt, and remarking upon his bad appearance. Although he was well when the first lad accosted him, he grew very sick sometimes before he had run the whole course of the gauntlet.

I hold that every unconscious imitation is a transfer of a brain-movement communicated to another brain in such a manner that the brain which repeats this movement of the first brain adopts it as one of its own originating, and not as a repetition. On this, to my mind, rests the great problem of hypnotism.

Every one who is a lover of dogs, and consequently has observed them much, must have met some specimens with great aversion to loud sounds,—for example, those of a church bell, at the ringing of which they would break out into terrific howls, with evident manifestation of intense suffering. Some years ago I had a dog who was thus affected, making his neighbourhood exceedingly uncomfortable by his noise whenever the church-bell sounded, which, unfortunately, is next door to me. While I owned this tuneful creature another one was given to me, who at first did not care in the least for the ringing of all the church-bells around him, but after a while caught the disgust for them from the old dog, and learned to suffer as profoundly as that one had always done. I gave the second dog away, and got a new one; but the same thing occurred with the third dog; he also learned to be in pain at the bell's sound, and I had finally to get rid of him and the old dog together before I could succeed in retaining with me one which did not howl during the bell's ringing.

There were expressed in these new dogs all the sufferings the old dog so plainly showed, and yet originally they had not minded the noise at all. Therefore the communicated brain-movement had become like an original one with them. But even diseased brain manifestations can produce similar phenomena in other brains. All are familiar with the fact that gaping is contagious, and also that St. Vitus's dance and even epileptic seizures are communicable. Of course the soil must be suitable for receiving impressions. The depressing effects of great emotion alone do *not* create such soil, but they doubtless make what is *already suitable* still *more so*.

That this view of the contagiousness (I might as well call it) of brain movements, of physical, intellectual, and moral diseases, is not a singular one, is demonstrable amongst other things by the fact that not a few alienists have formed the belief that mental aberration may be communicated to a sound mind by example and daily intercourse with the insane.

Prof. Cesare Vigna, superintendent of the famous insane asylum at Venice, published lately a monograph in which he takes a very decided stand in this matter. He says,—"Moral contagion rests upon a moral law, which Dr. Despine endeavoured to formulate thus: 'Every demonstration of the instincts of our soul, of the feelings and all our passions, incites similar feelings and passions in individuals, which are so constituted as to feel these instinctive elements up to a certain degree. Just as the sounding of a musical note causes the resounding of a *like note* in all resonant bodies which are capable of emitting the same note, and are brought within the sphere of the note struck, just so the demonstration of a feeling or a passion excites the same instinctive element, gives it perfect life, and makes it, so to say, resound in every individual, who by his moral constitution is capable of experiencing the same more or less vividly.'"

This pleasing comparison, however accurate or striking, contains nevertheless only an indirect proof, which throws certainly a fine light upon the phenomenon, but does not explain it satisfactorily.

The aberration of the sound mind by contagion can be shown to follow the same physiological law as that which governs the communicability of mania. When we live with persons who reason wrongly, who make illogical conclusions and act accordingly, our brain, constantly receiving, so to say, the reflex effects of these wrong conclusions, feelings, and actions, becomes strongly impelled to think, conclude, and act in the same manner. They of course who have already acquired a strong and steady judgment are at first little subjected to this power; they may even develop a strong dislike to this brain-movement, but in the long run they cannot resist. Others, however, who have not yet become possessed of a stable mind are carried away irresistibly. It is astonishing to find on examination to what extent our intelligence is impressed by favourable, as well as unfavourable, surrounding influences.

There does exist within us a secret force which constantly conforms our thoughts to our actions, and our entire inner being to our external habits. Therefore, if we are induced to commit wrong actions by contagion, as it were, our inner being will mould itself in conformity with this, and hence it does not take a great deal to plant in a person (especially in youth) false ideas, and thereby to cloud the sound mind and cause it to lose its clear reasoning.

I am convinced that the true essence of hypnotism possesses kindred elements to these thoughts. It is the imparting of a brain movement to others, or the creating a new one in another, which becomes as the other's self-originated thought. The only peculiar feature about it is the condition that can be produced in the majority of persons, in which they are most ready to receive and adopt these foreign thoughts as their own. That the hypnotic state can be produced is an established fact. Why it is produced, we do not know. That suggestions made to the individual during the hypnotic state are acted upon by him afterwards is to my mind largely explained by what I have spoken of as the communicability of brain-movements. Experience, after all, has

been of the first value in all natural sciences, most of all in medicine, for up to very recent times all our medical knowledge was empirical. And can we now explain all we see? Can we tell how all medicines produce their effects? In the majority of instances do we not have to content ourselves with the knowledge that a certain therapeutic means has been used successfully by others before us in certain pathological conditions, and that for this reason alone we follow in their footsteps? It is often almost the story of the lepers over again who were healed by washing in the Jordan.

To reject anything brought before us by men of undoubted ability and honesty simply because it appears absurd (and that only because inexplicable to our infantile brains) is unworthy of a follower of our noble art. Not ten years have passed since it was the prevailing thing in Germany to doubt the reality of all hypnotic phenomena, and to assume to explain all results of those practising hypnotism as the joint product of credulity on the side of the operator, and of simulation on the part of the patients. But the names of Charcot, and Heidenheim, and Forel, and others have put down all such assumption at the present hour. Of course there are opponents still, but they are far less vociferous, and they even publish at times an occasional explanation of hypnotic phenomena, thereby wholly forgetting that by this attempt they acknowledge the very existence of these phenomena.

Of utmost importance is the point raised as to the possible injurious effects of hypnotism. But it is our honest duty, in pursuing the subject, to inquire, in spite of this fair testimony, if it can exert a detrimental influence on the spiritual or mental health of the persons operated upon. The legal aspect of it also is most important, for there is no reason why the hypnotised might not be induced to commit crime. Although I am not acquainted with any special case where such was done, I feel certain that it *has* been done, and that for this reason several European governments most properly have made the exercise of hypnotism a grave penal offence, unless practised by a competent physician, and for proper

therapeutic purposes. That the hypnotised might be made the victims of another's crime has been demonstrated by Liègeois, who is Professor of Jurisprudence at Nancy, and who does not even hypnotise women in order to make them believe they owe him money. He also made a woman confess a murder she had never committed. The same experimenter made women agree to commit crime, or to accuse others of having perpetrated a crime which had been committed by them.

There is no doubt that for crimes of this nature the hypnotiser should be punished, and *not* the hypnotised. The so called magnetisers or mesmerisers are the charlatans who, either knowingly or not, practise and misuse hypnotism. By their public exhibitions they produce much damage, especially amongst the most nervous individuals of their audiences. All such charlatans should be dealt with severely by the legal authorities; but to abandon hypnotism on account of possible misuses would be as foolish as to strike from our therapeutics chloroform, or chloral, or opium, because people have been killed by them, or to forbid instruction in the methods of bringing on abortion because of the practices of any McCorkles. But even should an experience of many and honest and careful investigators prove undeniably that hypnotism is beyond human control, that its essence cannot be discovered, and that its dangers are too great, it would be still a proper thing to have investigated it, and discovered such facts about it, that then its use might be *altogether* prohibited, and thus taken away even from the charlatans, who doubtless have done by it, under other appellations, much harm to humanity. Investigators report an increased disposition to become hypnotised in those who have been repeatedly treated. This means, also, an increased liability to suggestions even in the waking state, and hence the danger of becoming an easy subject or prey to the influence of others.

In my own experience, I have only noticed the first thing mentioned, a becoming more easily hypnotised by repeated

hypnotisations. To remedy this evil, it is proposed to say to such patients, while in hypnosis, "Nobody will ever hypnotise you against your will, nor will any one influence you unduly while awake; you are perfectly able to withstand undue influence while awake," etc., etc.

Liébault, who has employed hypnotism for thirty years, does not report any bad effects on patients under observation for so long a period.

Forel, of Zürich, likewise gives no account of damaging consequences.

And hypnotism is far better than any of our well known dangerous remedies; for the surgeon, for example, who uses chloroform the most often, meets the most fatalities, whereas the hypnotiser who has the most experience with this therapeutic means finds the least trouble.

Of course hypnotism, like all other therapeutic measures, has its circumscribed sphere, but its usefulness within it is destined to become very great. It has been asked, When shall hypnotism be employed? This is as yet difficult to answer. It seems, however, safe to place at the head of the list of diseases, where its use promises the most success, the functional neuroses. Chronic chorea, anomalies of menstruation, headaches, sleeplessness, are generally benefited by it. Corval has cured stammering by it.

Opponents to hypnotism have said that only those cases have been cured by it which might have been relieved by other means. This is *not* so, for enough cases of cure are on record on which everything else had been tried in vain, including hydropathy, massage, electricity, and even surgical interference. Organic diseases, too, have been benefited. To prove this, Bernheim relates a most interesting case of apoplexy with paralysis, in which rapid improvement took place under hypnotic treatment. Later the patient died of some pulmonary disease, and a post-mortem (which was fortunately permitted) revealed not only the state of the lungs causing death, but evidences of the previous attack of apoplexy in the brain substance.

Chronic rheumatism, with great visible swelling of the joints, has its painfulness relieved by hypnotism.

There is a conflict among the followers of hypnotism, dividing them into two camps, one headed by Prof. Bernheim, of Nancy, the other by the distinguished Charcot, who claims a special something for the hypnotism of the hysterical, which he calls the "grand hypnotism."

I do not propose to judge in this, as I am but a beginner in the study and use of this remarkable "ism." Too much of it lies yet to me in the unknown territory of future scientific developments and explanations. But "suggestion" to me means simply a species of *psychic influencing*, differing however from all others, such as the *command*, the communication, or the teaching. For in being commanded during the waking state there exists always in the obeying a degree of questioning or criticising, whereas during hypnotic sleep this is *not* the case, and the suggestion is carried out without any examination as to its intrinsic value. As I have stated before, the thought, the idea, the impulse to act, is in the hypnotised person received, adopted,—absorbed, I might say,—and regarded by him as originated within his own brain, and the hypnotic state produces a capacity for concentrated brain power unknown during the waking condition.

We are greatly inclined to think all this exceeding strange, and suspiciously eye this new visitor in the therapeutic camp. But it is really no stranger. Modern hypnotism is simply a development out of the so called animal magnetism. Oriental nations have known for a long time the fact that certain psychical conditions can be induced in man by certain manipulations. They made use of this knowledge for religious purposes. The Egyptians, by an unflinching, fixed gaze upon some special object, usually of a brilliant surface, some vase or crystal, induced a hypnotic state. The Persian Magi practised the same largely several thousand years ago, and the Zogis and Fakirs of India have brought down this ancient practice, without intermission, to the present day. The Hesychasts or Omphalo psychics, who inhabit Mount

Athos, hypnotise themselves by fixing their gaze upon their own navels. In all times has existed the belief that certain persons possessed a certain power over others. The laying on of hands in pronouncing a blessing, as recorded from the earliest times, belongs to this same category. So does the healing wrought by the old Egyptians by the touch of the hands. So does, if I am not mistaken, the cure of the king's evil by the laying on of the king's hand. The French kings, from Francis I to Charles X, practised this. The way in which results were obtained by these means was by impressing the brain profoundly with the idea that benefit *must* and would come from this simple, and therefore all the more mysterious, procedure.

A patient of mine some time ago reported to me a most interesting occurrence in his family, which further illustrates the strong effect of mind upon body. His wife had retired to bed before him, and just on going to sleep remembered that she had meant to take a portion of a certain saline cathartic she occasionally resorted to. She therefore asked her husband to prepare it for and give it to her. He found, however, that the bottle was entirely empty. It did not suit him to go to the drug store at so late an hour, neither did he wish to say so to his wife; so he prepared the cathartic draught without the cathartic, and administered it to her in the dim light of the chamber. The result was precisely the same as if the real dose had been taken.

From the time of Philip of Macedon to the present day parents have acknowledged the importance of making proper kinds of impressions upon the young. When Philip's wife gave birth to Alexander, this wise monarch wrote to the great Macedonian sage, Aristotle, who was chief physician of the court, and who, as we all know, had himself been a pupil of Plato and had the name of being one of the greatest and best of philosophers of the day, that he truly rejoiced in having a son born to him, but "that he called himself trebly blessed in having this son born at a time when he could have Aristotle for a teacher." By him he meant to have his son

educated, and his brain impressed with all that is best and purest and noblest.

All impressions often repeated are said to leave a lasting furrow upon the brain substance—*all* impressions, the *bad* as well as the good. Therefore does it become an imperative duty to preserve the young, whose brain is yet like wax, from bad impressions, and to see that this substance, which is the instrument (or the seat) of the intellect, grows hard in its form only while being moulded solely under the purest and most beneficent influences.

Hypnotism is based upon all these facts obtained and acknowledged of brain impressions or brain influencings, with only this difference, as was stated before, that the subject in question does not know that the "ideation" produced in him originated first in another brain, but holds it as one originated by his own.

Now, if diseased conditions or emanations of the brain (under which head I class the condition needed to imitate, for example, the taking of one's life) can be *produced* by seeing them in others, why then is it not possible reversely to make the brain *conquer* diseased conditions? Or, if I may put it more logically, if the brain can be so influenced as to produce in the body a diseased condition, why is it impossible to expect the reverse, *i. e.*, to impress the brain with the strong desire to remedy a diseased condition of any part of the body, as long, especially, as it is of a functional nature? It is claimed for hypnotism that it puts the brain into a state in which it becomes capable of developing the greatest amount of energy to carry out the suggested ideas. Are these claims of a nature which finds no explanation or analogy in human experience?

"The halo of absurdity," says Prof. Forel, director of the Zürich Canton asylum, "is still by many thought to surround the problem of hypnotism, but I say to them, Have you examined it? Have you tested it? Have you tried it? Do not judge before having done so."

Bernheim, of Nancy, and all his colleagues have been, and

are still, labouring constantly to deprive the hypnotic phenomena of all that is strange by trying to bring them into close connection with the normal psychic life and sleep. They endeavour to point out the relationship of hypnotic manifestations to the ordinary ones of the waking and sleeping state, and how the same psychological laws govern both; how all of hypnosis belongs to the domain of psychology, and how suggestion is its central point.

I propose now to say a few words about the history of hypnotism, and in doing so I may surprise some of my hearers by expressing the belief that the first tangible form to which we can trace it is undoubtedly the occult science of astrology, which had its birth in the Middle Ages. We are all familiar with it, and a description of it here would be wholly superfluous. Most naturally it died, not, however, without leaving some facts behind it. The belief in the influence of the moon on human beings has still a by no means limited number of followers. The conjuring away of warts under a waning moon is a well known relic of astrology.

Theophrastus Paracelsus created an immense furore when he appeared before the public as the greatest occult scientist of the first half of the sixteenth century. He is reported to have cured many people of diseases through the influence of the heavenly bodies upon them. And there is no doubt in my mind, or in any one's reasoning with me, about the fact of their having been cured,—*not*, of course, through the influence of the heavenly bodies, *but* through their belief in the influence of them, or perhaps, still more, through the powerful effect that the wonderful presence of Paracelsus had on the minds of his patients.

In 1700 the Scotchman Maxwell proclaimed a new way of cure, "by transplanting the disease upon animals," and a notion of this kind is still found in remote country districts of the Old World.

At the beginning of the eighteenth century the Italian Santanelli maintained that all material things exhaled an atmosphere which acted electrically, but it is a most *signifi-*

cant fact that he likewise recognised the *high value* of the *imagination*. Considering the men so far mentioned as mere forerunners, the one to be spoken of now must be considered a great central figure. I refer to that celebrated Vienna physician who lived from 1734 to 1815, and created everywhere the most extraordinary sensation and did the most wonderful things, the great and justly celebrated Mesmer.

Mesmer and animal magnetism are inseparable words. He divided magnetism into animal and mineral, and though he used the latter extensively for a long time by the medium of magnets, he later on dropped it almost entirely and devoted his whole attention to the former, using it alone in his practice among the people. At first he employed only the touch, but subsequently made use of different things as mediums. His professional brethren, however, made his life in Vienna so uncomfortable by their unceasing hostile attacks, that he left that city, to the great sorrow of the multitudes whom he had benefited, and settled in Paris, where he founded a school, whose pupils were called Mesmerists. One of these, Chastenet Puységur, a man of eminent ability, in 1874 discovered a state or condition which was termed "artificially produced somnambulism." I am perfectly certain that the peculiar state or condition recognised by Mesmer, and which he believed he produced by "animal magnetism," was nothing more or less than our present hypnotism, or, rather, hypnosis or hypnotic sleep, or hypnotic benumbing, or whatever else it might be christened.

It seems at first sight strange that these curious phenomena were not followed up, examined, studied, but were allowed to pass unheeded. However, when we bring to mind the fact that just then came the outbreak of the French Revolution, which submerged everything in the filthy depths of its merciless flood, we need wonder no longer. Nevertheless, Mesmer's teachings found pupils everywhere.

Lavater was the first teacher of animal magnetism in Germany. When first made known there it was looked upon with distrust, but in the first twenty years of our present

century it became very popular and was practised by many physicians. Foremost among them stands the well known Hufeland, who, after having been a violent opponent, became a perfect devotee of it. But he persistently excluded from it all supernaturalness, which the mystic party maintained strongly.

In 1812 the Prussian government sent Dr. Wolfart, of Berlin, to Mesmer in Paris, that he might study under him. Wolfart returned an ardent convert, introduced magnetism "into the therapeutic armament of the hospitals," and became professor of it at the university. The government authorised magnetism in Prussia; and Denmark, Russia, Italy, and Switzerland followed its example within their territories.

Just then was dealt a severe blow to "animal magnetism" by the Abbe Faria, who came to Paris from India, and showed through experiments made in 1814 and 1815 (whose results he published in 1819) that "for the production of the symptoms seen in magnetism no outside power is needed, and that the cause of this artificially produced sleep resides in the patient himself." "Behold in this declaration the fundamental principle of hypnotism." Still the practice of animal magnetism continued in the Parisian hospitals, and in 1826 the Academy of Medicine in Paris appointed a commission to examine into the nature of this strange "ism." Six years did this commission labour before they made a report, which was a favourable one. But the academy remained incredulous, and in 1840 stopped all further discussion about it.

Then followed a time when science abandoned the subject almost entirely, and left it to swindlers and charlatans, who enriched themselves by means of it out of the people's pockets.

In 1841 the French magnetiseur, Lafontaine, came to Manchester, England, and exhibited some experiments there. Dr. Braid, of that city, was impressed by them, studied the phenomena, and, for *the first* time, called the sleep produced hypnosis or "hypnotism." Braid took the same position as

Faria, but demonstrated the phenomena with far more method. He wrote a book on the subject, which soon fell into oblivion, to be resurrected and largely republished, and, if I am not mistaken, even translated into foreign tongues years after *its apparent* death and the real death of its author. Braid hypnotised his patients always by making them fix a steady gaze upon some object, generally a bright and shining one. He at one time believed the condition induced to be the same as that produced by mesmerism, but abandoned this idea and afterwards thought it altogether different from mesmerism. He became acquainted with the so called cataleptic state and certain suggestions, and made use of them therapeutically, especially in surgical operations, in which the Mesmerists had already used their animal magnetism. Braidism then became a distinct term, and it and mesmerism were talked of together. Braidism was strongly championed by the physiologist Carpenter, but it, with mesmerism, fell into disuse.

In the meantime animal magnetism had taken root in our own country, prominently in New Orleans. Grimes, with Dods and Stone as followers (independently from him, however), had fallen upon Braid's methods, but had called it "electro-biology."

In 1850 one of his pupils, Darling, went to England, and there exhibited his "electro-biological phenomena," but it was soon discovered that this was merely Braidism under a new name.

Durand de Gros, a French physician, emigrated to the United States, where he became a convert to electro-biology. He returned to Europe, and held public lectures and made experiments with his new science, but caused no interest.

Then Ayam, of Bordeaux, took up Braidism, encouraged by Bazin and ridiculed by others, and made original hypnotic experiments, the results of which he demonstrated before Broca, of Paris, who, in consequence, brought up hypnotism for discussion for the first time in the Academy of Sciences.

Velpeau and Guerineau tried it in surgical operations, to

make them painless, but they and a number of other distinguished surgeons in France, Germany, and Russia pronounced it of small value in this respect, and let it drop, which expulsion from surgery prevented its entrance into medicine.

Meantime Liébeault, having experimented largely with animal magnetism and hypnotism, so as to become thoroughly familiar with all their different shades and grades, rejected entirely animal magnetism as a mere delusion, but espoused hypnotism most enthusiastically. He placed "suggestion in hypnotism" as a therapeutic means upon a scientific basis, and moved to Nancy, where he has become famous and attracts a large following. In 1866 he published his experiences and results in book form. It was interesting and very readable, but did not meet with a great sale, and earned him much ridicule.

In 1875 Charles Richet came out for hypnotism, calling it "somnambulism provoqué."

In 1878 Charcot made demonstrations with it, and exhibited the physical condition of hystero-epileptics during the hypnotic state.

In 1881 Paul Richet published in his book on the "Grand Hysterie" many hypnotic experiments in the same spirit as Charcot.

In 1872 Czermak, in Germany, and, after him, Beyer, published an account of hypnotic experiments upon animals, but caused no special interest.

Not Charcot's researches, even, nor Prosper Despine's book on Somnambulism, published in 1880, called forth any investigations; in fact, no public scientific acknowledgment of the claims of hypnotism upon scientific consideration was made till the medical faculty of Nancy became interested in the subject.

Then, in 1886, was given to the world Prof. Bernheim's most interesting work, containing a full account of his individual experience with hypnotism. He had studied the subject under Liébeault, and agreed with him fully.

The dispute between the Nancy school and the Charcot, to

which I have referred above and which is still going on, is of no special interest, and I shall not enter at all upon the merits of either side. But as regards the work itself of the Nancy school, it is but just to state that it attracted attention in Spain, Italy, Greece, Russia, Norway, Sweden, Denmark, and Holland. In fact, many years before Bernheim, did Palido, in the first named country, make therapeutic use of hypnotism.

The Society for Psychical Research in England has been devoting much time to the subject, and Hack-Tuke has for years past pointed out its therapeutic importance.

In Switzerland great work was done for it by the distinguished alienist, Forel, of Zürich (mentioned by me above), from whose influence emanated the great interest awakened for the study of hypnotism in Germany.

I have carefully studied whatever I could find in print bearing on this remarkable subject, and I have (timidly at first, I confess, but confidently afterward) made use of hypnotism in appropriate cases as a therapeutic means. Of course my experience is limited, but the telling and unmistakable results of even *one* case are enough to demonstrate its value, or rather, first of all, its claims to existence, and to acknowledgment as a real, positive therapeutic agent.

Case 1. The first patient with whom I was led, or almost forced from sheer desperation, to employ the curative value of hypnotism was most remarkable in many respects. It would be folly to go into great detail. It will suffice to state that she had been ill for four years, and I was the twenty-third physician whose aid she had sought. She was then sixteen years old, remarkably robust, and advanced in her physical development, representing, rather, a woman of twenty years and more. She was as pale as marble, showing redness only in the full lips. Four years ago, while travelling in Europe, after an attack of measles and a severe mental shock, the curious nervous condition commenced. She spent most of her time in bed, and was thrown into hysterical convulsions by the movement of the cars or a private carriage. She could walk but very feebly; she com-

plained of constant dizziness, and saw snow falling before her eyes whenever she looked upon a dark spot. Her appetite was precarious, and her digestion proportionate to the inactivity of her life. Her bowels were sluggish, and her menses regular. She had last been in the hands of a reputed gynecologist, who, with perfect justice, especially in view of the fine physical development of the patient, and his diagnosis being coincided in by a distinguished consulting neurologist, had made a vaginal examination, and thought there existed a slight uterine displacement. He therefore introduced a support. But she had worn it for several months without the slightest change in her symptoms; in fact, if anything, she was growing worse steadily. Believing that time enough had elapsed to gain results from this means, and perceiving none, and fearing that the consciousness of the presence of the pessary within her genitals would naturally and unhealthfully call her thoughts constantly to these bodily organs of hers, I removed the instrument. But on my next visit, some days later, I found her totally unable to walk across the room, because since the removal of the pessary (so she stated) she felt as if all her "insides" were coming out as soon as she attempted to take one step. I promptly made *a show* at replacing it, and these disagreeable symptoms vanished instantly. In fact, I had to deal with a case of hysterical insanity. In the course of from two to three months I succeeded in improving her physical condition to a considerable degree, but could not cause the nervous symptoms to yield one iota, although I had firmly expected improvement in this direction from her physical gain. I did persuade her to take a ride with me, but though she endured it, and did not attempt to jump out of the wagon, it was fraught with such evident mental anguish to her that I had to give it up. It was at *this* time that I concluded to try hypnotism, to which then I had given considerable attention in the way of reading Forel's book. The very first result was most gratifying. After having hypnotised her, perhaps, five or six times, I suggested to her at my next visit to walk by herself,

refusing all company, to the post-office, as soon as she should have waked up from her hypnotised state. To her mother's surprise, and even horror (for she had not walked at all alone for several years), she promptly followed out my suggestion. The fact is, that she became perfectly well.

Case 2. A young lady of highly nervous organisation, though otherwise in good physical condition, sent for me to relieve her of an excruciating attack of ovarian neuralgia, to which she was subject, and which generally lasted for a number of days. She had been suffering for some hours before I could see her, trying many external remedies with no result whatever. It was nine o'clock at night, and she in bed. I told the attendants to remove all outward applications, for I would give her relief without any medicine, and that speedily. Then I proceeded to hypnotise her, placing my hand on the painful region. In two minutes she was asleep, and did not wake up till five o'clock the following morning, as I was told on my next day's visit. No return of the pain took place.

Case 3. A case of inflammatory rheumatism of the wrist. The patient, a healthy young woman, had wrist and hand painted with iodine and enveloped in cotton and oiled silk. During several attacks of different ailments I had at various times hypnotised her with benefit. She had the most unbounded confidence in my word. It struck me, therefore, that this would be a good case to see what the power of the mind—the imagination alone, even without the hypnotic influence—could do. So I gave her simply twelve large sugar-of-milk pills, and directed her to take one every three hours. I then told her in as emphatic, positive, and decided a manner as I could call up, that soon after having taken the second she would begin to be better, and would continue to improve in the same way after each new pill till all twelve had been taken, when no trace of the rheumatism would remain in her wrist. My predictions were made good by her to the very minute, and she was perfectly well after the twelfth pill.

Case 4. A case of hysterical insanity in a young lady twenty-two years of age. She was constantly bemoaning past sins. I succeeded after much difficulty in bringing her into the hypnotic state, and suggested to her the absurdity of her grief over trifles, and the beauty of cheerfulness. She got well at once, so that I did not have to repeat the hypnosis.

It seems to me that we, as medical men, too often forget that it is not our only aim to create a perfect science of medicine (which it is of course our duty to strive for while we prepare ourselves for the great work of a physician), but that when we have come to practice among our fellow-men, we should not treat the diseases of our patients, but our patients themselves.

Case 3 has given me immense cause for reflection, and I cannot bring this paper to a close in a more fitting manner than by quoting the following words of Maudsley, which, though written in 1870, seem to touch with perfect freshness what I have been endeavouring to point out. He says,—

"Perhaps we do not as physicians consider sufficiently the influence of mental states in the production of disease, and their importance as symptoms, or take all the advantage which we might take of them in our efforts to cure it. Quackery seems to have here got hold of a truth which legitimate medicine fails to appreciate and use adequately. Assuredly the most successful physician is he who, inspiring the greatest confidence in his remedies, strengthens and exalts the imagination of his patient:—if he order a few drops of peppermint-water with the confident air of curing the disease, will he really not do more sometimes for the patient than one who treats him in the most approved scientific way, but without inspiring a conviction of recovery? Ceremonies, charms, gesticulations, amulets, and the like have in all ages and among all nations been greatly esteemed and largely used in the treatment of disease, and it may be specially presumed that they have derived their power, not from any contact with the supernatural, but, as Bacon observes, by

strengthening and exalting the imagination of him upon whom they were used. Entirely ignorant as we are, and probably ever shall be, of the nature of mind, groping feebly for the laws of its operations, we certainly cannot venture to set bounds to its power over those intimate and insensible molecular movements which are the basis of all our visible bodily functions, any more than we can justly venture to set bounds to its action in the vast and ever progressing evolution of nature, of which all our thoughts and works are but a part. This much we do know: that as, on the one hand, in the macrocosm of nature, it is certain that the true idea once evolved is imperishable,—that it passes from individual to individual, from nation to nation, from generation to generation, becoming the eternal and exalting possession of man: so, on the other hand, in the microcosm of the body, which some ignorantly despise, there are many more things in the reciprocal action of mind and organic element than are yet dreamed of in our philosophy."

DISCUSSION.

Dr. JOHN CRONYN, of Erie county, said that one of the lecturers in his college had a patient whom he kept in the hospital several years largely for exhibition to students. Becoming interested in this science—hypnotism—he undertook to treat him in that way, and in a short time effected a cure. A curious fact connected with the case was the exactitude which the patient manifested relative to time. The doctor gave directions that she should receive medicine at seven o'clock, sharp. She was then in the hypnotic state. She had no means of knowing the time, yet exactly at seven o'clock she awoke and wanted her medicine.

Many years ago he had an experience with hypnotism in a different form, connected with the reflection from a brilliant object, and to which attention had been drawn by the French about 1861. This patient had become addicted to morphine, taking a drachm a day for the relief of what she supposed to be pain. When she became his patient he tried to stop the morphine and substitute other substances, such as had answered the purpose in other cases in which the habit had not gone too far; but no influence was produced in this case. The patient became a raving maniac. On the sixth day, she looked as if she would die from exhaustion. On this day, the sun was very bright, and, thinking of the French surgeon's method, when they sent for him, supposing she was

dying, he got a large silver ladle, made her hold it in the hands with the sun shining upon it, had her look steadily at it, and then watched her movements. It required three quarters of an hour for her hands to drop; the ladle fell, and she went to sleep. She slept for twelve hours, it being the first sleep she had obtained for many weeks. She awoke perfectly well. That, he thought, was the first case of hypnotism which occurred in his neighbourhood.

A short time ago there was a gentleman in his vicinity who had angina pectoris, and coughed continually. He could not lie down. After four or five days, when the cough had become much better, and he was able to sit up in his chair with more comfort, he still was afraid to lie down. He had for months been obliged apparently to sit in his chair, getting here and there those sudden pains. The patient's wife told him one day she believed Mr. F. really could lie down if he would. But the patient *knew* that he could not. The doctor said to him in a very authoritative way, calling him by name, "You are to go to bed at nine o'clock, and sleep until seven in the morning." The patient replied, "I cannot do it." He simply *commanded* that it should be done. He went to bed at nine, and slept until seven in the morning, and since then he has continued to sleep regularly. If this is hynotism, it should receive our attention.

Dr. A. Palmer Dudley, of New York county, said he thought there was no one in the room who would appreciate the paper more than he did. He believed the reader made the statement that it—hypnotism—was the transmission of one mind to another. If that impression was one of hypnotism upon himself, he was not responsible for it; but he thought he should go home and sleep better to-night than he had many nights during his professional life, for he had supposed he had told many white lies. He was glad to learn from the author what to call it. His practice of it commenced when he was a student in the Maine General Hospital. The following was about the first case: A young lady (and, by the way, he noticed that all the cases reported in the paper were of ladies, but he hoped some present would give cases of hypnotism in men) came into the hospital with a cough which was uncontrollable. She was under the care of good physicians. She was given remedy after remedy, and he himself prepared them as hospital interne. Nothing would cure her cough. Finally, his colleague and himself planned to cheat the woman if they could, for at that time they thought it was *cheating* to employ some method which was not medical. She being a faithful Catholic, they thought they would play upon her through her religion, and told her they would go down to the priest and get some holy water, and see if that would not stop the cough. They went down stairs and smoked as good a cigar as was to be had in those days, and, after sufficient time had elapsed, returned to the patient with some water, telling

her to take a teaspoonful every half hour. In three days she had no cough. They impressed upon her that it was absolutely necessary to take the water every half hour, and that she must be very careful of it, for it had been blessed and they could get no more. He thought then that was a white lie, but he learned now that it was only hypnotism.

That was one of several cases. In fact, during his hospital career of four and a half years, he came to be so expert in that method of treatment that he used to carry a bottle of morphine in one pocket and a bottle of water in the other when making his rounds, and would give morphine hypodermically in one case and water in another, and would find that the patient who got water slept as well as the one who got morphine. One instance, he thought, bore on the point of transferring a mental impression from one person to another, and might be worth mentioning. It occurred in the woman's hospital in a patient who had been seven years in bed. She had a faithful husband, who had spent every dollar to keep her there. She was a beautiful woman, and had hair four and a half feet long, which would be nicely dressed every morning before any one was awake. She was under the care of Dr. Thomas, and had come in for local conditions, which were carefully treated. The house surgeons watched her carefully, but no one was able to detect how her hair became so nicely dressed each morning. They were, it should be remembered, in the position of house officers, and had to be pretty careful of what they did. He asked permission of Dr. Thomas to study the woman's disposition for a while, and did so. He made up his mind that her case was one of mental impression. She *thought* she could not get out of bed, and also claimed inability to lie upon one side. At any rate, she was always in a certain position, no matter what time of day they went to her room. He watched her, setting a trap for her, and at two o'clock in the morning found her asleep like a baby, lying upon the other side. Then he lectured her a little, told her she could have no more medicine, and that he would be in at such an hour in the morning and wanted her to be up. He went, but of course she was not up. After reasoning with her awhile, he told her that if she did not get up he would assist her. She was given one day of grace, but the next morning she was still abed. He noticed that she was nervous, anxious, not knowing just what would happen. He told her that as she did not obey, he would have to act as lady's maid, and proceeded very firmly to dress her; but he had not proceeded very far before she consented to try. Gently, but quickly, he landed her in the middle of the room. The amount of weight she bore upon him was apparently greater than her own avoidupois. After reasoning with her a while, he dropped her, then stepped back, and she reeled around the room several times, but he noticed that she did not lose her feet. As she started to the bed, he drew her back again. The next day, after reasoning with her, he

again forced her to leave the bed, and in three weeks she left the hospital perfectly well. It was simply the use of will power, which the author had termed hypnotism. Some will say the woman was shamming. He did not think she was. It was a condition of mind which she could not control. Every day he treats hysterical women in some such way; but he should go home, after having listened to the interesting paper, much less troubled by a conscience which he had supposed was covered with white spots,—the remains of white lies.

THE MIMICRY OF ANIMAL TUBERCULOSIS IN VEGETABLE FORMS.

By E. F. Brush, M. D., of Westchester County.

October 22, 1890.

At one time I became deeply interested in reading the travels of Livingston and other brave and noted explorers of Africa, and while my mind was full of the wonders and mystery of the Dark Continent, I met a gentleman who informed me that he had resided many years in Africa. I tried to obtain from him some information of which I had been in search. I spoke of the geographical problems to be solved and the difficulties to be surmounted in civilising that enormous continent; and the whole burden of his comments was, that Africa was a great country, and would be easily civilised and all obstacles overcome if it were only properly drained. Now this man's residence in Africa had been confined to the west coast, where the notoriously swampy and malarious districts lie, and, because he had not travelled farther nor interested himself in the travels of others, he imagined that all Africa was like that portion of the country which he did know would be the better for draining.

We would all naturally be surprised at the narrowness of this man's views, who imagined that an immense continent, with snow-capped mountains and rainless deserts of vast extent, could be judged from the narrow limits of a malarious swamp where he had resided for a few years; but on reflection the idea could not but occur to me that we medical men, in our studies of the dark continent of disease, are often as narrow in our views as this man was in his views of Africa. For instance: A very few years ago Koch discovered in a tubercle numerous bacilli, and straightway we decide that the tubercle would be harmless if it were not for the bacilli, and we put ourselves to work with hot air, rectal injections, medicated

inhalations, etc., imagining all the time that we could subdue this terrible and mysterious disease, and settle all the difficult questions of pathology connected therewith by simply eliminating from the economy the bacillus of Koch. The bacterial region is emphatically now our place of residence; we wade through swamps of pus, blood, and morbid tissues, pushing aside all other forms and vital processes, after the beckoning spectre of a bacillus, and, when we find it, flatter ourselves that we have reached the goal and discovered all that is necessary to conquer a disease associated with this small organism. We hardly inquire how it gained access, what its functions are other than that we imagine it as the causation of disease, but accept it as the spirit and soul and prime factor in the causation of pulmonary tuberculosis. Happily the tendency now is to break beyond the bounds of this narrow bigotry: hence I think that a study of some of the vegetable forms that closely mimic animal tuberculosis will help us in our march beyond the narrow swamp through which we are still struggling.

One of the vegetable diseases which mimic very closely tuberculous animal processes is seen in the nut-gall. Nut-galls are truly tubercular processes affecting the breathing apparatus (leaves) and the nutritive channels (roots) of plants. Nut-galls are among the most puzzling of natural phenomena. It is actually known that the *cynips*, or gall-fly, a small insect of the hymenopterous order, punctures the leaf of a plant or tree, and then deposits an egg, injecting at the same time a very minute drop—the animal itself is only one tenth of an inch in length—of what is described by entomologists as a poison, but which is beyond doubt a digestive ferment. This fluid, injected by the insect into the cavity which holds the egg, affects the nutritive processes of the plant in such a preponderating manner that it allows the egg to rest in the cavity without the irritating result of the intrusion of a foreign body, and the extraordinary nutrition caused by the ferment goes on to form the tubercular mass known as a gall.

Far more interesting and more closely analogous to animal tuberculosis is the disease attacking the grape-vine, caused by the insect called *phylloxera*. Can anything in plant life more closely resemble a human tubercular process than the leaf attacked by the phylloxera? "In August, 1885, Luiz de Andrade Corvo presented a paper to the Academy of Sciences, in which he asserted that the vine disease ascribed to *phylloxera vastatrix* is really due to a bacillus, or, rather, according to his description, to a bacterium which is always found in the tubercles of the radicles and in the tissues of the vine which are affected by this disease, termed by him tuberculosis. They are also found in the body of the insect, which thus becomes simply the agent of contagion."[1]

Now, has not this author narrowed his views down to the bigotry of bacilli-worship? The presence of a bacterium in this disease of plant-life is only one of many phases of a morbid process. The bacillus he discovers here is merely the nutritive ferment deposited by all gall insects, and often, as we have already said, called a poison. The *phylloxera vastatrix*, like the *cynips quercus*, punctures the leaf, deposits its egg in the wound, and, besides, injects the bacterium which is the nutritive ferment that produces the gall which characterises the disease. The following sketch of the natural history of the phylloxera is taken from John H. Comstock's "Introduction to Entomology:" "The grape phylloxera hibernates in the roots of the grape, mostly as a young larva of the first or sedentary agamic wingless form. With the renewal of vine growth in the spring, this larva moults, rapidly increases in size, and soon commences laying eggs. These in due time give birth to young, which soon become agamic egg-laying mothers like the first, and like them always remain wingless. Five or six generations of these parthenogenetic egg-bearing, wingless mothers follow each other, when (about the middle of June in the latitude of St. Louis) some of the individuals begin to acquire wings. Thus is produced the second or

[1] Ancrades. Ferments and Moulds. E. L. Froussart. D. Appleton & Co., New York, 1886.

migrating agamic winged form. These issue from the ground while still in the pupa state: as soon as they acquire wings they rise in the air and spread to new vineyards, where they lay their eggs usually in the down of the under sides of the leaves. Each individual of this generation lays from three to five and some as many as eight eggs. These eggs are of two sizes; the smaller eggs, which produce males, are about three fourths of the size of the larger, which produce females. From these eggs are hatched in the course of a fortnight the third or wingless sexual form. It is a very remarkable fact that this form emerges from the egg not as larva, but as fully developed individuals. These sexual individuals are born for no other purpose than the production of their kind, and are without means of flight or taking food. After pairing, the body of the female enlarges somewhat, and she is soon delivered of a solitary egg. The impregnated egg gives birth to a young louse, which develops into the first form, and thus recommences the cycle of changes. It has been discovered that sometimes the first form, during the latter part of the season, lays a few eggs which are of two sizes, like those of the second form, and also produce males and females which are precisely like those born of the winged form, and like them produce the solitary impregnated egg. Thus the fact is established that even the winged form is not essential to the perpetuation of the species. Occasionally individuals abandon their normal underground habit, and form galls upon the leaves of certain varieties of grape-vine. Owing to the great injury this species has done to the vineyards of France, hundreds of memoirs have been published regarding it. But as yet no satisfactory means of destroying it have been discovered. The difficulty lies in the fact that the insecticide must be one that can penetrate the ground to the depth of three or four feet, reaching all the fibrous roots infested by the insect. It must be a substance that can be cheaply applied on a large scale, and that will kill the insect without injury to the vine. Where the vineyards are so situated that they can be submerged with water for a period of at least forty days

during winter, the insect can be drowned. It is found that vines growing in very sandy soil resist the attacks of the grape phylloxera. This is supposed to be due to the difficulty experienced by the insect in finding passages through such soil."

Here we have the whole natural history of a bacillary, tubercular disease in plants. Notwithstanding the fact that every phase of its life history is well understood, and the diseased parts can be seen and handled, yet its treatment is futile. This teaches us the narrowness of our study of human tuberculosis when we imagine that Koch's discovery of the bacillus placed us in a position to treat this complicated disease. We do not know the manner in which the bacillus gains the position it occupies in the tubercular mass, or why it sometimes attacks the lungs, and sometimes the glands, and sometimes the bones. Is it conveyed to its position by a host? Nothing we as yet know indicates this supposition except the analogy of vegetable parasites. It is not found in the blood nor in the muscular juices. The present exclusive devotion to the observation of bacteria would almost preclude the detection of a host if one did exist.

Crookshank, in an appendix to his work on Bacteriology, says,—"When examining blood, the bacteriologist must be prepared to meet with minute organisms which at the first glance, under moderate amplification, may be mistaken for vibrionic or spiral forms of bacteria. The organisms referred to belong not to the vegetable but to the animal kingdom. They may occur associated with disease, but they appear to be more commonly found in the blood of apparently healthy animals." Thus the fact is stated by good authority that parasitic animals do exist in the blood.

This is not the only parasite to illustrate the mimicry of animal and vegetable morbid forms. There are myriads of parasites, and parasites on parasites in the descending scale to the minutest forms. Thus all vital activity is kept in unison; nothing is allowed to die; one living organism ceases that others may continue other phases of vital activity. The

little germ that robs man of his vitality undoubtedly conveys that vitality to some other living organism, thus forming a link in the endless chain of organism in action.

Another form of change, not parasitic, is suggestively analogous to the bacillary tubercular phenomena. The yeast plant is a germ, and undoubtedly Pasteur's noted researches in the life history of this plant formed the starting-point for the universal study of bacteriology to-day. No thinking man could have followed his reasonings, conclusions, and deductions without concluding that all febrile conditions, at least, were the result of the growth of germ life, producing ptomaines, extractives, etc. There are many phases of alcoholic fermentation that mimic the morbid processes of bacillary phthisis.

Thus we know that the presence of the tubercular germ in the mouth or other parts of the body is not always followed by tuberculosis. Analogously, we know that the presence of yeast germs in a saccharine solution does not always give rise to alcoholic fermentation. The solution must contain less than twenty-five per cent. of the saccharine material. Thus the specific gravity of the solution is the controlling condition in the activity of the yeast plant. The same may be true of the human body. It can easily be understod that in the human body the specific gravity may vary. Thus an exceedingly fat and juicy body would be of lighter specific gravity than a closely knit, hard, muscular body, and undoubtedly the specific gravity of the body has something to do with the morbid action of many of the germ phases of disease. Nor is this all. Before Pasteur's enlightening investigation, it was supposed that the yeast germ was contained in the atmospheric dust, but Pasteur proved conclusively that this is not the case. He admitted atmospheric air and its dust into sterilised tubes of proper saccharine solutions for the growth of yeast, but the alcoholic fermentation was never set up in solutions thus treated. When the question arose, Where did the yeast plant come from? and further study revealed the fact that all kinds of fruit present on their

surfaces a germ, termed by Engle "apiculated ferment" (carpozyma). This is a hybernating germ, and unless the fruit is bruised and its containing sugar in due proportion brought in contact, the germ will not grow or produce its special changes. This plant does not in any way resemble the ordinary yeast plant, unless it is modified by its growth in a fermenting fluid. May we not then easily suppose that some germ forms exist normally in the animal tissues, prone to tubercular disease, and only develop into the forms in which we find them when some anterior morbid process has been developed?

This idea is concisely expressed in a paper read before the New York County Medical Association, March 17, 1890, by Dr. Jas. R. Leaming, a gentleman who has grown old in the study of disease. He says,—"I have seen no case of phthisis that could not be accounted for satisfactorily without supposing infection or contagion. I can say more: I have seen no case of phthisis where there was a probability of primary infection with no other cause. The first physical evidence of dead atoms in the system is their extension from the capillaries into the pleural cavities as damaged leucocytes or ptomaines, and their recognition there by physical diagnosis, and this may be done before the presence of bacilli can be detected in the sputa. The bacillus is consequent, not causative: it is true that ptomaines are in the blood before the expulsion of the leucocytes, but as a rule not in an abundance sufficient to attract the germs."

This explanation of one phase in the development of tubercular disease will coincide exactly with the development of alcoholic fermentation in the case of grapes. Thus on the the surface or in connection with the grape there is a hybernating germ, and this germ is never brought into activity unless the grape is bruised and forms a solution, when the germ becomes active and changes the sugar into alcohol and other products of fermentation, which mimic the formation of ptomaines in the animal economy.

There are many other forms of vital processes outside of

the animal body that mimic its morbid processes. All these forms are complicated, many of them mysterious, and associated with an interminable train of evolutions anterior and subsequent to the germ activity. My object in alluding to those enumerated is only to show the apparent fallacy of our imagining that because we have discovered the presence of a minute germ, we are also in possession of sufficient knowledge of the morbid processes associated with this germ to indicate a rational mode of treating the disease when the germ exists, without knowing definitely how much other conditions outside the germ have to do with the process. It has ever been one of the characteristics of scientific men to make sweeping and hasty deductions from the discovery of some one undoubted fact.

I do not in any manner wish to detract from the honour and brilliancy of Koch's discovery, but I wish to protest against the tendency of the medical mind to-day to hang everything on the bacillus. For instance: If the bacillus were the only cause of tuberculosis, it would have to be viewed in the light of a foreign body in the tissues, and we know that foreign bodies set up inflammatory action and subsequent suppuration, which is not always the history of tuberculous processes. These are sometimes organised or cretified. There is a germ disease where the morbid processes depend on the germ and the germ alone, and an abscess is always formed by this germ (actinomycosis), and a cleaning out of the abscess and total elimination of the germ ends the morbid process. But I think the presence of the tubercular bacillus must be viewed in somewhat the same light as the nut-gall of phylloxera. In this the presence of the eggs is not the cause of the tubercle, because if the egg alone were deposited in the leaf it would act as a foreign body; it is the material which is injected into the leaf at the same time as the egg is deposited which sets up such an action in the nutritive processes of the leaf that the irritation of the egg is entirely overcome.

Without much stretch of the imagination we can conceive the giant cell as occupying the position in the tubercle of

human phthisis that the egg of the *cynips* occupies in the nut-gall. According to this view the bacillus would be the nutritive material causing the growth of the tubercle. These surmises and others similar could be carried on *ad infinitum*, but I think the mimicry is suggestive enough to indicate to us that there is vastly more to be known of human tuberculosis than merely that a germ is present in a mass of morbid material.

DISCUSSION ON INTRA-CRANIAL LESIONS.

October 22, 1890.

QUESTION I.

WHAT ARE THE MEANS OF LOCALISING INTRA-CRANIAL LESIONS?

QUESTION II.

WHAT IS THE NATURE OF THE CHIEF INTRA-CRANIAL LESIONS (HAEMORRHAGE, ABSCESSES, TUMORS), AND HOW CAN THEY BE DISCRIMINATED?

QUESTION III.

WHAT ARE THE INDICATIONS AND CONTRA-INDICATIONS OF OPERATIVE INTERFERENCE IN CASES OF INTRA-CRANIAL LESIONS?

QUESTION IV.

WHAT ARE THE BEST MODES OF OPERATING IN CASES OF INTRA-CRANIAL LESIONS?

QUESTION V.

WHAT ARE THE IMMEDIATE AND ALSO THE REMOTE RESULTS OF OPERATIVE TREATMENT IN CASES OF INTRA-CRANIAL LESIONS?

INTRODUCTORY REMARKS ON THE FOREGOING QUESTIONS.

By W. W. Keen, M. D., of Pennsylvania.

The programme proposes five questions for discussion. I feel that it will be better for me to leave the first two, con-

cerning cerebral topography and the nature of the lesions, to the able neurologists who are to take part in the discussion, rather than to attempt to treat them so briefly and imperfectly as I should have to do in this paper. I shall therefore content myself with some observations on the last three subjects, which are strictly surgical.

ROLANDIC FISSURE METER.

Before doing so, however, I desire to show to the Association Mr. Horsley's new Rolandic Fissure Meter, which I have lately obtained through his courtesy. Heretofore we have assumed, as shown by Thane, that the fissure of Rolando runs downward and forward at an angle of 67° with the middle line. Mr. Horsley's observations have convinced him that the angle varies with the shape of the head, that is to say, with the cranial index. The higher the cranial index, the greater the angle; the lower the index, the lower the angle. Mr. Horsley assumes a standard for the cranial index of 75 as established by the caliper of Broca, and for the angle of the fissure of Rolando 69° instead of 67°, and for every two integers of variation in the cranial index he assumes one degree of variation in the angle of the Rolandic fissure. Hence, if the cranial index is 77 instead of 75, the angle for the fissure would be 70° instead of 69°, and if the cranial index is 73, the angle for the fissure would be 68°, and so on. Based upon this, he has devised the instrument which I show you, and which differs from the ordinary fissure-meters or cyrtometers in being provided with means for rotating the arm representing the fissure of Rolando.

TOPIC III.—INDICATIONS FOR OPERATIVE INTERFERENCE.

In considering the Indications for Operative Interference in the brain, we must bear in mind, first, the peculiar physical character and relations of the brain, and the mechanical and physical disturbances to which it is subjected; and, secondly, its functional disturbances.

The brain differs from all other organs of the body in its physical character and relations. It is softer, and its functions are more easily deranged by pressure, especially if that pressure increase rapidly. Its texture is of a more delicate organisation, and the continuous and undisturbed performance of its functions are more vitally important to the ordinary activities of life than those of any other organ. It is also more closely and firmly encased than any other organ. It is perfectly true that other organs have an envelope of greater or less resistance and density. For example, the eye is enclosed in the sclerotic, the testicle has the tunica albuginea, the structures in the palm are protected and to a certain extent enclosed by the palmar fascia, and the organs of the abdomen and pelvis and those of the chest are enclosed partly by bony and partly by muscular walls. If there is any increase in the contents, and therefore in the pressure, within the eyeball, or within the tunica albuginea, either by inflammatory exudation, by suppuration, or by a new growth, it is true that the envelope restrains them and produces compression; but the envelope will either yield or will be perforated with comparative ease; and, besides, even should these organs be destroyed, this does not involve life. If there is any similar increase in the contents, and therefore of the pressure, within the chest or abdomen or pelvis, there is plenty of room for any exudation, for pus, or for a tumor, without producing fatal pressure on the contained organs. If an abscess forms under the palmar fascia, it can escape either under the annular ligament into the forearm, or posteriorly between the bones, and so relieve the pressure.

In the brain it is different. Not only is it a delicate organ, the integrity and function of which are destroyed to a greater or less extent by any pressure unless quickly relieved, but the bony case which protects it is so firm and strong, that, as a rule, long before it can be perforated and the dangerous pressure thus be relieved, the brain will be rendered incapable of performing its functions, or life itself be destroyed.

In cases of increased pressure, both the brain and the skull

vary very much in their behaviour when the pressure increases acutely and when it increases slowly. For instance, when we have a rupture of the middle meningeal, or acute hydrocephalus, the pressure will quickly cause coma and death; but in a case of chronic hydrocephalus, or sometimes of tumor, the increase is so slow that the brain accommodates itself even for a number of years to a gradually increasing pressure; and, if the patient be young, even the bones of the skull will yield without producing a fatal result, except after a long interval. These considerations must weigh much in forming our decision.

In addition to these mechanical disturbances, there are certain functional disturbances not caused by increased pressure, and probably the result of microscopical, and even as yet undiscovered, changes in the brain, which lie in another category.

Hence, in considering the question of operative interference from a clinical stand-point, the first great class of cases are those which have to do with *pressure symptoms;* the second great class have to do with what we may name, in default of a better term, *functional disturbances.*

In the first class, or *alterations producing pressure*, we may include abscess, tumor, effusions, and haemorrhage. To these pressure-producing intra-cranial lesions (which are the only ones to be considered in the present discussion) should be added fractures attended by depression.

There is also another class of injuries, such as gun-shot or other penetrating wounds, and lacerations of the brain substance resulting from contusion, which produce very many of the same symptoms as the lesions mentioned in the first class, as well as additional symptoms peculiar to these lesions.

Among the *functional disturbances* may be mentioned epilepsy, arising either from traumatism, and attended therefore usually with gross appreciable changes in the brain, though not necessarily with increased pressure; and, again, functional epilepsy, in which there are no gross lesions. In the

same class we should include inveterate headache, insanity, and other mental disturbances and arrested development.

I will therefore briefly discuss, first, the indications for operative interference in the class of lesions attended with pressure symptoms, and, secondly, in those which are functional in character.

First, lesions attended by increased intra-cranial pressure.— We can in a few words discuss the phenomena which attend increased intra-cranial pressure. First, the *intellectual function* suffers, and the patient becomes dull and stupid, and this stupor may gradually deepen into coma and total unconsciousness. Or, while consciousness is not affected, the faculty of language may suffer, or ocular or auditory appreciation may be disordered. Secondly, there will be disturbances of *motility*, resulting either in paresis or paralysis of certain muscles or groups of muscles, for example, in hemiplegia, monoplegia, or ophthalmoplegia. Thirdly, there may be changes in *sensation*, either over smaller or larger areas. Fourthly, there will be changes in a majority of cases in the *optic discs*, and possibly of other parts of the eye-ground.

These phenomena will vary in detail with the case, will be more or less pronounced, and any one may be absent, but in no case can there be increased intra-cranial pressure to any extent without producing, wholly or in part, the picture I have so briefly drawn.

If to these pressure symptoms there be added the phenomena peculiar to any one lesion, the diagnosis is well established. For example, in tumor we will have the so called cerebral vomiting, and generally headache and convulsions. In abscess we will have very likely a sub-normal temperature and cerebral vomiting, a demonstrable cause in a long-standing otitis media, or a preceding severe fall or blow. In haemorrhage from the middle meningeal, the history of a distinct traumatism, followed by that most important sign, an interval of lucidity, after which the coma will come on; while in ordinary apoplexy we have the age, the existence of atherom-

atous arteries, and, what is usually equally important, the absence of traumatism. Besides all these general symptoms, there will be the localising symptoms, which are of the greatest value.

If any lesion which produces increased pressure—which pressure, if unrelieved, will prove fatal—can be located, and, with reasonable certainty, can be differentiated from other conditions which produce more or less similar phenomena, and if the location is such as to render it accessible, our duty is clear. We should open the head and remove the cause of the dangerous pressure, just as we open the abdomen, the chest, or the palm to remove pus, an effusion, a clot, or a tumor. The head has been too long regarded as something apart, something different, from other portions of the body, with peculiar and anomalous rules as to surgical interference. What I wish to urge is, that it shall fall into line with the other cavities of the body. Subject, as it is, to the same diseases and injuries, it must be subject also to the same rules for surgical interference,—modified in detail, it is true, but in no wise differing in principle.

It is perfectly true that our means of making a diagnosis are, in the head, greatly limited as contrasted with other parts of the body. For example: Inspection as a rule reveals nothing, whereas inspection of the abdomen, palm, or chest reveals a great deal. We are cut off from the use of touch by reason of the hard, bony skull. For a like reason percussion is almost valueless, and auscultation does us no good. But we have, on the other hand, changes in far distant organs which do not exist in other lesions. The paralysis of the hand, the arm, or the leg helps us to recognise and to locate the lesion in the brain with an accuracy which now, though not unimpeachable, is becoming more and more marked from year to year. So, too, the alteration of sensation in distant parts and the lesions of the eye-ground are often equally valuable and equally certain.

Secondly, functional disorders.—There are certain functional disorders, also, in which we ought to interfere, and can

often do so with advantage, though the indications in this class are as yet far less clear than in the case of pressure-producing lesions. Our ability to decide this often difficult question is also gradually but surely increasing.

The indications for operative interference may be thus briefly summed up: The disease must be, first, a grave danger to life, growth, mental development, or so destroy the comfort of living that life is not worth having. Secondly, it must be established in each case that the ordinary medical means have been exhausted, and that nothing further can be expected from drugs, from diet, hygienic care, etc. Thirdly, the danger to life from an operation must not be so great that we may not rightly run this reasonable risk in the hope of a greater gain. It has been amply proved of late years that trephining *per se* is not an especially dangerous operation, provided it be carried out with modern antiseptic precautions. When we go beyond simple trephining and open the dura, it adds a little, but not a great deal, to the danger. When we take a further step and excise a portion of the tissue of the brain, the danger is increased, and may be even greatly increased, it is true, but not to such a degree as to prevent our taking this step in case a great gain is to be reasonably hoped for, and in case there is certain danger of deplorable and probably permanent mental and physical loss and deterioration without such interference.

Thirdly, exploratory trephining.—In both classes of disorders, however, there are a considerable number of cases in which we are in doubt, either of the character of the lesion, of its extent, its location, or its physical characteristics. In these cases the same rule again should hold good in the head as in other parts. If the danger is great, and especially if the result without interference is almost sure to be fatal, as is so often the case, intra-cranial lesions must now fall into line with lesions elsewhere, and we should do an exploratory trephining in order to make a correct diagnosis; and if the exploratory operation shows it to be possible, we should remedy the condition found. The vital importance of the brain,

and the gravity of its lesions, while they should make us cautious, should also make the rule of exploratory operation even more imperative here than elsewhere.

This rule, however, must be modified in intra-cranial lesions in one important respect. In the abdomen, for instance, we need not be absolutely sure of the location of the lesion, as, once that the belly is opened, its entire cavity is at our command. In the brain the conditions are far different. Exploration is limited to the exposed area and its vicinity: hence the location of the lesion should at least be *probable* before we operate. But the extreme gravity of these intra-cranial lesions should embolden us to operate when the location *is* probable. If we wait until it is ascertained with certainty, we must wait till a post-mortem clears up the diagnosis.

I should be loth to give the impression that I recommended reckless or indiscriminate trephining to any surgeon, even to the best. Each case must be carefully considered, all the facts elicited, and the possibilities weighed, the advantages and the dangers; and if, having faithfully done this in each obscure case, the possibilities of gain outweigh the possible or probable dangers, exploratory trephining is clearly indicated.

TOPIC IV.—THE TECHNIQUE OF OPERATIONS ON THE BRAIN.

Shaving.—Under this head I wish to insist primarily on the need of shaving the head, in order to determine the existence, number, and position of any scars. I have almost never shaved a head without finding several scars, with perhaps the history of only a single known traumatism.

I cannot better illustrate this, I think, than by narrating briefly the following case, in which I have also the pleasure of showing you the result in the person of the patient himself:

W. A., aet. 15, weight 97 lbs., was seen in consultation with Dr. B. A. Watson, in Jersey City, September 28, 1888. A little over two years before, he fell out of a swing on a

stone step, striking on the top of his head, and cutting the scalp badly. He thinks he was not unconscious. The wound healed in four weeks. Two months after the fall his first epileptic fit occurred. The bromides reduced the number of them to about one in a month, but when not taking them he had a fit nearly every day, beginning usually in the hands, on which side could not be determined.

Four scars were discovered on shaving his head, the principal one an inch and a half long, beginning at the fissure of Rolando, a quarter of an inch to the left of the middle line, extending across the right side one inch and a quarter to the right of the middle line, the direction being slightly oblique backwards. A second, smaller scar was one inch and three eighths back of the fissure of Rolando, two and seven eighths inches to the left of the middle line; and a third, still smaller, at the same distance back of the fissure of Rolando and three eighths of an inch to the left of the middle line. The fourth small scar was just above and one inch to the left of the inion. The size of the scars was in the order in which they are named, all but the first being small. All of them were slightly tender, the tenderest being the third named. Under it, also, an obscure indentation of the bone could be felt. Naturally one would suppose here that the largest scar was the one acquired at the time of the only known accident in his history, and which was followed so promptly by epilepsy.

It will be noticed that the history of the fits gave no indication as to the location of the cortical lesion. There had been no motor phenomena in the legs, though the principal scar was over the leg centre, nor had there been any sensory or mental phenomena, such as word-blindness, word-deafness, agraphia, etc. The eye-grounds were not altered. I should add, also, that the boy had been kept in the hospital under Dr. Watson's observation, but on no occasion could a fit be observed.

In view of the difficulty of localising any lesion by the symptoms, and of the tenderness of the scars, I determined

first to excise the scars themselves and examine the bone, and if I saw reason, to trephine at any point where the bone seemed to have been injured. If the bone was found normal, I would do nothing at this time but excise the scars and await the result.

September 28, 1888, the scars were excised. The bone appeared uninjured, and nothing else was done. For a short time after the operation the fits were absent, but then returned, and for months after occurred from one to three or four times a week. Observation in the hospital again failed to determine their character, but the mother was now quite confident that the right side of the body was more affected than the left. Moreover, the boy had developed homicidal and suicidal tendencies. Accordingly, on September 7, 1889, at his own and his mother's urgent request, I did the following exploratory operation:

Though the principal scar was chiefly on the right side, the symptoms seemed to point to the left side of the brain as the region of the trouble. I trephined, therefore, at the left end of the principal scar, a half inch to the left of the middle line, as close as I deemed prudent to the longitudinal sinus. A one and a half inch button of bone removed showed nothing abnormal in the bone. In order next to determine whether there was any lesion of the skull on the right side under the scar, I took Horsley's dural separator and swept it carefully backward and forward, hugging the bone very closely with the advancing edge, lest I should penetrate or tear the sinus, and thus I worked slowly from the left side across the sinus an inch and a quarter to the right side of the middle line. I found the manoeuvre not difficult, and perfectly successful. I separated the sinus from the bone, the adhesions of the dura being much greater there than on either side of it. I also loosened the dura on the opposite side, and was able by the separator to determine that there was no irregularity on the under surface of the skull corresponding to the principal scar, as far as one and a quarter inches to the right of the median line, and

one and three quarters inches from the edge of the trephine opening. The history and this examination convinced me that most likely the two small scars to the left of the trephine opening were possibly, if not probably, the site of the mischief.

Accordingly, I first exposed the brain under my first opening. This appeared normal. Biting away the bone in the direction of the lesser scars and opening the dura, the brain was soon seen to be abnormal over an area an inch in diameter, and corresponding to the second scar. The abnormal area was whitish, as from an old inflammation, with at one point apparently a small cyst. In front and to the left was a distinct area of redness one third of an inch in diameter. The whole of the abnormal area, also, was slightly depressed.

Unfortunately the battery which we had at hand, at the moment when we wanted to use it, would not work, and I was unable to determine the possible motor value of the convolution. As nearly as I could judge it corresponded to the supra-marginal or possibly to the angular gyrus, but it could not be distinctly recognised.

I then excised the abnormal part, measuring one inch antero-posteriorly, one and a quarter inches transversely, and scant three eighths of an inch in thickness. Immediately under this area removed, but half an inch deeper, I thought I felt a spot of hardness, which I removed with a Volkmann spoon. Examination of this afterwards convinced me that my touch had been at fault, and that I had needlessly removed normal tissue.

The dura was now sutured, the large button and a number of small fragments of bone were laid upon it, and the wound dressed as usual. The boy's highest temperature was only 100.6° on one occasion, and in a week it fell to normal. His recovery was very speedy, a slight paresis of the right hand being the only apparent motor phenomenon.

Dr. Watson had his eyes carefully examined, as I feared I had injured the visual centre or its radiating fibres, but neither was there any ordinary blindness nor any word-blindness nor apraxia.

December 11th, 1889, three months after the operation, I received a letter from the boy expressing his thanks, and adding that he had had no fits, and was at work in an express company. Since then he has followed the sea and been exposed to all its hardships. He has had no homicidal or suicidal tendencies. His attacks in nearly fourteen months have only been four, and the last one was over three months ago. He has grown tall and robust. His hand, as would be judged by his occupation, is entirely well.

This case illustrates well the point I have made, that shaving the head is an essential preliminary. With the history of only one accident, four scars were found, and the principal scar was evidently not the one corresponding to the cerebral lesion. In addition to this it shows, as an operative point, that by the means I have described we can separate a sinus from the skull, and reach across it to examine at least the bone, far away from the trephine opening.

Sublimate Solution. In connection also with the preliminary preparation of the patient, I desire to emphasise the fact that the corrosive sublimate should not be used on the freshly shaven scalp stronger than 1 to 2,000, for I have found that the ordinary 1 to 1,000 solution pustulates the scalp; and even if there be no danger from it, it is the source of great annoyance which may easily be avoided. Once that the brain is exposed, I discard all antiseptics and use only boiled water, not so much on account of the possible danger of poisoning as because the antiseptic lessens the reaction of the cortex to the electrical current.

Haemorrhage. The position of the patient is important. Mr. Horsley always operates with his patient reclining, not very far from a sitting posture; and I think the point is well made, as it diminishes the danger of haemorrhage, which, with shock, constitute the two great dangers of cerebral surgery. The preliminary use also of morphia and ergot will diminish the calibre of the blood vessels, and is certainly of value. The application of antipyrine and cocaine (ten per cent. sol.), is of undoubted value, I think, in checking gen-

eral oozing, but I doubt if they are of any more value than hot water, and, after all, it is not the general oozing that troubles us so much as the large veins. Hence I think they may both be dispensed with.

For the arrest of the haemorrhage our chief reliance, however, must be placed on the ligature by catgut. In doing this the large vessels and especially the large veins should be double ligatured before division. Once they have been cut it is very much more difficult to tie them than before. The haemostatic forceps sometimes hold, but more commonly they tear away, producing renewed haemorrhage, often controlled with great difficulty. The greatest care must be used that the action shall be equal upon the two ends, and that it shall not be too great: just enough to occlude the vessel and to retain their hold is sufficient. To have room to cope with this formidable danger, also, the opening in the skull must be ample. No vessel should be cut near the edge of the opening. If needful to cut it there, the opening should first be enlarged by the rongeur forceps.

In addition to the ligature, hot water has yielded me very good results in many cases. But I am convinced that in at least one case I have used too hot water, and produced cerebral disturbance, which contributed to the fatal result. It should not be over 120°, if indeed so hot.

Haemorrhage from the superior longitudinal or lateral sinus is always an alarming event, and may make the operation speedily fatal, not only, I may even say not so much, directly from loss of blood, as from the shock and loss of vitality of the nerve-centres. It happened to me recently in one case, to wound one of the large veins at its junction with the superior longitudinal sinus, in spite of the fact that I thought I had gone quite far enough away from that dangerous region. The reason for my being so unexpectedly near it was, that, in consequence of a defective development, the sinus lay a half inch to one side of the middle line. I had recognised the defective development and had allowed for the displacement of the sinus, but, as the result proved, I had not allowed

enough. The haemorrhage was very severe, but was quickly controlled by a pair of haemostatic forceps. During the later manipulation the forceps became detached, when another rush of blood came, and although this was controlled in the same way, in a few minutes the patient became moribund, and died in fifteen minutes after the speedy termination of the operation, about half an hour after the haemorrhage occurred. The amount of blood lost was perhaps not more than from eight to twelve ounces, an amount that the patient could easily have lost from the arm or from a wound in the scalp without such direful consequences. Hence, if possible, these large veins should be carefully avoided, especially near the middle line where they empty into the sinus, and if they must be divided it should only be after double ligature.

Should the sinus itself be wounded, one of three courses is open to us. The first, as my friend Dr. W. J. Taylor did during the past summer, is to seize the edges of the sinus by the haemostatic forceps, as above narrated, and let the forceps remain *in situ* for two or three days; secondly, to pack the sinus, as many surgeons have done, and in most cases successfully; thirdly, as has been done in a few cases, to tie the sinus with two ligatures, one on each side of the wound.

This last manœuvre, however, is much more difficult in a case of an abundant haemorrhage which follows a wound of the sinus, than as a prevention of haemorrhage when the sinus is to be deliberately cut across. The deliberate ligation of the sinus has been done a few times, one of them being a recent very remarkable case related to me by Mr. Horsley, in which he removed a large part of the frontal and of the squamous portion of the temporal bones, tied and divided the sinus, and lifted the frontal lobes, thus gaining access to an aneurism at the base of the brain pressing on the optic chiasm, for which he ligated both carotid arteries, a surgical feat only equalled in its daring by the brilliancy of the diagnosis, which was verified by the operation. The patient at last accounts was recovering from the operation.

Whether he recovered from the aneurism or not, time will have to show.

Not uncommonly, after trephining, the cut edge of the bone bleeds very freely. To arrest this Mr. Horsley informs me that he uses the following paste or putty: Melt repeatedly one part of yellow wax to four of vaseline. Next, add carbolic acid one to twenty and mix intimately. Then add sufficient white wax to make a mass that will be hard when cold, but be quickly softened by the fingers. With this (kept disinfected, of course) he putties up the vessels in the edge of the bone.

Drainage.—Whether drainage shall be employed or not is an important question. Of course in abscesses and other suppurative cases continued drainage must be employed; but in ordinary operations I think the question must be decided in each case chiefly by the haemorrhage. If this has been so far arrested that the wound is almost dry, drainage may be safely omitted altogether. Mr. Horsley tells me that he has operated in all his recent cases without drainage. This is certainly the ideal operation, and the end toward which we all strive. In order, however, that we may do without drainage, the haemorrhage must be arrested to such a degree that only slight oozing, if any, shall remain when the wound is closed.

EXPLORING FOR ABSCESS.

This, as I have pointed out in former papers, should not be done in obscurely described directions "downward and a little inward and forward," etc., but from the opening always in a definite direction, *e. g.*, in the direction of the external angular process, the opposite pupil, an inch above the opposite external auditory meatus, etc. The reader then can locate the abscess when he knows the point of departure, the direction of the puncture, and its depth. I have also given my reasons for preferring a grooved director to a needle in such explorating punctures. (Trans. Tenth Internat. Med.

Cong., Berlin, 1890, and Med. News, Dec. 1, 1888, and Sept. 20, 1890.)

THE AVOIDANCE OF SHOCK.

I am persuaded, by no little experience, that in the head more than in any other part of the body we must bear in mind the lessons taught us by Dr. Cheever in his admirable paper on Shock, read before the American Surgical Association in May, 1888. He there urged that one of the important elements of shock was the time consumed in operation. This applies especially to operations on the brain. A cerebral operation is always time-consuming, and this is especially bad in view of the prolonged anaesthesia. It is of the greatest importance, therefore, that wherever we can abridge this time it should be done.

Accordingly I always raise the periosteum along with the flap, instead of dissecting the two separately. Next, one of the most important elements in time is that required for trephining. The tendency has been of late to use very large trephines. I have commonly employed the one and a half inch trephine, and I am persuaded that anything larger than this cannot be used with advantage. I have tried a two-inch trephine, but have found that it required a longer time than if I had made two or three one-inch trephine openings, and then bitten away the bone with the rongeur forceps to any further required extent. This arises from its becoming fastened in the bone, and from the impossibility of adapting it well to the curved surface of the skull, and to the different thicknesses of the bone in different parts of its circumference. I have tried also to hasten the operation by using the surgical engine, but have found it not a practicable instrument. Mr. Horsley has recently devised an adaptation of the electric motor for working the trephine, with what success I do not know. The brace of a "brace and bit" has also been adapted to the trephine, with what advantage I cannot say. I am greatly inclined, however, to the opinion that the small trephine, an inch or an inch and a quarter,

and the later use of the forceps to bite away the intervening bridge and afterward, if needful, still further to enlarge the opening, is the better practice, especially with a view to speed.

It is all-important also to use the battery in every case to identify the convolutions which are exposed, in order to determine in the human brain the motor value of the convolutions, if possible. In doing so the graduated band of the fissure-meter should always be used to measure the distance of the convolution stimulated from the middle line, and from the fissure of Rolando or other well recognised fissure. I mention this exact measurement to determine the situation of the stimulated area, because, in a number of recorded cases, including some of my own, the value of such determinations is practically lost by the inexactness with which the centres were located. But while such determination of the motor value is important, it should not be made with too strong a current; it need only be such as would freely move the operator's thenar eminence, but no more. Nor should time be wasted in repeated applications further than is necessary to determine the facts.

The dura may be sutured either by interrupted or continuous sutures, whichever will enable the operator to terminate the operation most speedily.

In addition to this, the use of rest, of external heat from the very beginning of the operation, and of strychnia to prevent shock, and of alcohol, digitalis, and atropia to relieve it, have been forcibly advocated by Dercum (Med. News, Sept. 21, 1889), and should certainly be tried.

REPLACING THE BONE.

The question of closing the trephine opening by bone is still in my mind a somewhat undecided one. In all the cases in which I have done it, there is a flat surface instead of the normal arched contour of the skull. I have not been able to see, however, that it has produced any trouble, and it certainly acts as a valuable protective. In those rather obscure

cases of headache and allied disorders, in which perhaps the chief value of the trephining lies in the alteration of intra-cranial pressure, the bone should not be replaced. In all other cases I have replaced it without at least any deleterious results, and I am inclined to think with advantage.

If the bone is to be replaced, provision must be made beforehand for its care by placing it in a 1–2,000 sublimate solution, and it should be the sole duty of one assistant to see that this is kept at a temperature of 100° to 105° F. by means of hot water outside the cup or bowl in which the bone is placed. I have never had any trouble in replacing a disc as large as an inch and a half, and I prefer to do this rather than to spend time in chipping it up. But if the bone be greatly thickened, it should not be replaced in mass, but either bitten into small pieces, or, if the bone be diseased, it should be rejected entirely. The suggestion of Senn to close the opening by means of decalcified bone is a valuable one, especially where there has been a prior loss of substance. It has also one marked advantage in that it can be better fitted to the opening than ordinary hard bone.

TOPIC. V.—RESULTS.

These I will consider as to each disease or injury as briefly as possible. I shall not use the statistical method, but rather give the general conclusions I have reached, based both on my own experience and on a fairly thorough acquaintance with the literature of the subject. The topics as announced exclude from this paper the consideration of fractures of the skull, but I cannot help congratulating the profession on the development of cranial surgery in the treatment of these extremely serious injuries, and to urge that operative treatment shall be used more freely than was formerly the case, not only with a view to the immediate saving of life, but to the prevention of later disorders, especially of epilepsy.

ABSCESS.

No good surgeon will now hesitate to operate in a case of abscess of the brain. If there have been chronic middle-ear

diseases or a serious local traumatism, followed by stupor and other evidences of intra-cranial pressure, paralysis of the oculo-motor nerves, choked discs, sub-normal temperature, and possibly hemiplegia, the surgeon should undoubtedly trephine, puncture, evacuate the abscess, drain and dress in the usual way. It is not so much a question of percentages as it is that every case which recovers is just one life saved which under the old method of treatment would inevitably have been lost. The question Where shall we trephine? again starts the urgent cry for more accurate means of diagnosis,—a cry that will not be suppressed until the neurologists answer it satisfactorily.

TUMORS.

Practically the same remarks will apply here as in abscess. Every case that recovers is a life saved from inevitable death in case we do operate. The results have been on the whole thus far encouraging. Even very large tumors have been removed successfully, and a number of patients are still alive after several years. On the other hand, while a moderate number have died, there is again a not inconsiderable number that have suffered from a return of the original disease, and, what is still more mortifying, there have been a number of tumors sought for, and either have not been found, or have not even existed.

Here again we must ask most earnestly for the help of our neurological brethren, and happily we are not asking in vain. You will hear from some of them about to follow me the means for determining the location, the size, the number, and other characteristics of tumors and other intra-cranial lesions,—means which are becoming year by year more and more exact. We learn by our failures more than by our successes. Each case should be put on record therefore, as a means of avoiding similar pitfalls. The technique of operation is now fairly satisfactory, though not yet perfect, and its dangers have been minimized, so that we no longer fear the operation. But what we need above all else to-day is a more accurate means of diagnosis.

Tumors will sometimes be met with that are too large for removal. It is extremely desirable therefore that the neurologist shall be able to make a diagnosis of the approximate size of the tumor, if possible, before the operation. But with our present knowledge it is too much to ask that this shall be done with absolute accuracy. Hence, unless it is almost certain that the tumor is too large, it would be justifiable at present to attack it, for we may be mistaken,—the tumor not being as large as had been anticipated, and its relations with the brain much less intimate than had been supposed. If so, we may be able to remove it successfully, and if not, we can at least desist from the operation, and with modern methods, in most cases, the patient will recover from the operation; and in several recorded cases they have been bettered by the attempted yet abandoned operation.

And again: It may be that tumors are erroneously suspected to be multiple, and if so not amenable to operation. Here again it is sometimes wise, inasmuch as tumor of the brain is a certainly fatal disease, at least to attempt the removal for the same reason as just stated.

Again: Tumors may be of such character that presumably they have infiltrated the tissues, so that a return will be certain after a very short interval. Here, too, we may be in error. Even in the case of a sarcoma no infiltration may exist. I have lately had a case in point. Although the fall which was its probable cause had left no scar to locate the site of the blow, the diagnosis of the location of the tumor was exact. It was a large tumor, and the diagnosis had been either one large tumor or two smaller ones. The nature of the tumor was doubtful, but presumed to be tubercular; but the grounds upon which this diagnosis was made were not very certain. The post-mortem showed that the tumor was large, was situated in the area in which it was believed to exist, but also showed that even the slight manipulation for the removal of the brain produced auto-enucleation of the tumor. That it could have been removed by operation is very certain, and I have deeply regretted since that I declined to

operate. The tumor was a sarcoma, and the microscopical examination showed that the walls of the cavity in which it was contained were not infiltrated with the sarcomatous growth. Whether in spite of this the removal would have been followed by permanent cure is doubtful, but the patient at least should have been given the chance.

Much doubt has been expressed as to the advisability of operating upon tubercular and syphilitic growths, but cases have been reported where both have been removed successfully. The argument in favour of operating on syphilitic growths is stronger than in the case of tubercular tumors, for the reason that tubercular tumors are more likely to be multiple than any other variety.

The depth at which a tumor lies is another important point. The deeper it is situated the less accessible it is to operation: and here again we must invoke the aid of the neurologists. I have operated myself on one case in which the evidence seemed to be pretty clear that it lay in the cortex of the angular and supra-marginal gyri. At the operation it was found to lie underneath these gyri, but at such a depth as to render its extirpation impossible, and the patient died a few hours after the operation.

Perhaps the greatest opprobrium of cerebral surgery and the best proof of the need of more exact means of diagnosis, is in the number of operations in which either no tumor was found, or it lay in a wholly different position from that which had been diagnosticated. I have never yet operated in any case in which no tumor existed, but in one case the tumor was diagnosticated in the cerebellum, and the post-mortem showed that it was in the floor of the third ventricle.

In one locality it is a question whether tumors, unless they are small and accurately diagnosticated, can be removed with safety, namely in the cerebellum. A few such have been operated on, but all have proved fatal. In one case (Trans. Internat. Med. Cong., Berlin, 1890; Med. News, Sept. 20, 1890) I suspected a tumor and sought for it, not by a formal operation, but by a slight opening in the skull and prob-

ing of the cerebellum, both through the exposed lobe and obliquely into the opposite lobe without any resultant inquiry. The post-mortem showed that the tumor was a soft sarcoma, and my probe had passed through it without detecting its presence. But had I detected it and attempted its removal, the large vessels supplying it and its intimate relations to the fourth ventricle make it probable that the patient would have died upon the table. The structures in the neighbourhood of the cerebellum and fourth ventricle are so vital that I doubt whether we shall be able to cope with their dangers successfully, except, as I have said, in the case of small tumors situated well back in the cerebellum, and indicated by such symptoms that we can diagnosticate them accurately.

EPILEPSY.

The most frequent disorder in which our advice is sought as to the propriety of operation is epilepsy. In cases of traumatic epilepsy, the results have been on the whole very encouraging. A considerable number of cases are on record, some of them very severe, in which the patient has been relieved entirely of his dreadful malady, and while idiopathic epilepsy has not yielded such good results, they have been sufficiently encouraging to warrant our persisting to operate in well selected cases.

The results, I think, in general may be summed up as follows: First, taking one operator with another, a small percentage will die from the operation. Secondly, in a small but somewhat larger percentage, absolutely no result, good or bad, will follow recovery from the operation. Thirdly, in a large percentage of cases the patient, while not cured, will be benefited, the fits persisting, but with lessened frequency and violence. Fourth, perhaps in 20 per cent. or less the result will be practically a cure. If I may judge from the feeling of the parents and of the patients also, the judgment of those most interested is that the operation is justifiable, because the malady is so dreadful. Even if the patient is not benefited no harm is done, and whether he is benefited, is cured, or dies, both he and his friends are content.

One thing especially should be noted. It has been used as an argument against operation, that the removal of diseased tissue will result in a permanent paralysis, and that the patient pays dear for the cure by the penalty of paralysis; and he may not even be cured, but have the additional affliction of a useless arm or leg. This is not my experience. The paralysis which follows the excision even of a motor centre is only temporary. One of my patients, whose hand was absolutely paralysed immediately after the operation, had so far recoved its use after between three and four months, that he could play base ball; another is able to use his hand well, though it is slightly paretic; and a third is scarcely conscious that his hand was ever affected.

Whether, as is most likely, this recovery of function is due to the development of the bilateral function of the corresponding centre on the other side, or whether, as seems less likely, though not impossible, new cerebral tissue has been developed, is not certain. The recent experiments of Prus,[1] Salviati,[2] and Gilman Thompson[3] show that portions of the cerebral cortex can be successfully transplanted from one animal to another. Possibly hereafter this may lead us to a more perfect restoration of motor function by a similar transplantation from an animal to man.

HAEMORRHAGE FROM THE MIDDLE MENINGEAL ARTERY.

Haemorrhage from the middle meningeal artery, even without fracture, is now an accident amenable to operation, and not uncommonly with success. I would especially urge that if the clot is not found by the first trephining, a second trephine opening should be made, as is advocated in the able paper of Krönlein (Deutsch. Zeitschr. f. Chir. Bd. 23 Heft. 3 and 4, 1886). The site of these openings should be, as he has indicated, first, one inch behind the external angular process at the level of the upper border of the orbit, and failing

[1] Annals Surg. IX, 225.
[2] Wien. Med. Presse, 1889, No. 20, p. 838.
[3] N. Y. Med. Jr., June 28, 1890.

to find the clot, secondly, at the same level and just below the parietal boss. The two openings give access to the two branches of this vessel.

The accident, if untreated, is necessarily a fatal one. The operation, while by no means always a success, has resulted most brilliantly in several cases, and its lesson is evident,—that the surgeon should always at least endeavour to save life by trephining and ligature of the bleeding vessel.

SURGERY OF THE LATERAL VENTRICLES.

I have so recently and fully considered the question of the surgery of the lateral ventricles (Trans. Tenth Internat. Med. Cong., Berlin, 1890; Med. News, Sept. 20, 1890), that I need not here repeat what I have said in that paper, saving to urge that a trial be given to the method I have advocated, until its value or its worthlessness shall be determined.

INVETERATE HEADACHE.

Cases of inveterate headache, which have resisted all other known means, and still make life unbearable, are as yet in the category of undecided questions, judged by the results. Enough cases, however, have been recorded to show that it is well worth a trial, until the value of trephining shall be rightly determined.

MANIA.

In mania following traumatism it is certainly right to attempt relief by a carefully conducted exploratory trephining. Should death follow, it is a relief from a condition worse than death; and should relief and cure follow, as has already been the fact in a number of cases, it is a brilliant triumph. The evidences of the site of the injury guide us as to where to operate.

ARRESTED MENTAL DEVELOPMENT.

In cases of imperfect mental development from arrested growth, or, as in the case of Hare and Felkin (Manchester

Med. Chron., Oct. 1889), from a cyst following an injury, the result of operation has been such as to encourage us ; but excepting those cases which follow traumatism, I cannot look with great encouragement to the future of cerebral surgery in this direction. Whether or not the remarkable result of Craniectomy recently recorded by Lannelongue (L'Union Méd. Paris, July 8, 1890) will show that we ought to give room for the growth of the repressed organ, must remain for some time, in the absence of further evidence, an open question. The same remarks apply to trephining for general paralysis.

QUESTION I.

WHAT ARE THE PRESENT MEANS OF LOCALISING INTRA-CRANIAL LESIONS?

Discussed by JAMES J. PUTNAM, M. D., of Massachusetts.

Mr. President, and Fellows of the New York State Medical Association: I shall use the opportunity which your courtesy affords me to speak of two or three considerations primarily physiological in their interest, which seem to me important for the *doctrine of localisation*, especially the *relative value* of certain localising signs, and shall leave the task of analysing the recent clinical and pathological material to Dr. Mills, whose masterly review of the whole subject, in his address of 1888, has given him a prior claim in that field.

The general doctrine of localisation stands on a sure footing, and with the main points every one is familiar. At the same time, no one can attempt independently to investigate the subject without realising how immeasurably crude are the inferences and theories and the anatomical conceptions, in the terms of which we represent to ourselves the working of the cerebral mechanism, and any physiological generalisation should be welcome which gives us even a new point of view, and helps us to interpret our clinical observations to better advantage. It is in this spirit that I wish to call your attention to the relative value of certain so called localising signs of cerebral tumors, especially such tumors as lie a little outside of the familiar areas of the central, temporal, and occipital zones, and only impinge upon them, so that the symptoms to which they give rise will be liable to occur rather late in the progress of the case.

These are cases which obviously, and for more reasons than one, are relatively unsuited for surgical treatment. They occur constantly, however, in our practice, and I choose

them because I have several cases of my own in mind in which I think the diagnosis might, perhaps, have been made with sufficient accuracy to justify an operation, and where an operation, if done at the right spot and at the right time, would certainly have completely cured one patient, and might, at least, have partially relieved two more.

It is generally admitted as a clinical principle, that monoplegias and localised paralysis are more valuable as localising signs than mono-spasms or localised convulsions. This has been explained partly on anatomical and partly on physiological grounds. A paralyses, of more than temporary duration, renders it probable that the cortical area corresponding to a set of movements is damaged,[1] or else the small bundle of fibres passing from this area directly downwards; whereas, there is more chance that a localised convulsion may be due to an irritative lesion in the centres standing in physiological relationship with the area in question, or at a distance from it, or even to an unstable nutritive condition of the cortical area itself, without gross lesion of any sort. It has seemed to me that, in accordance with a similar course of reasoning, a distinction, not so important nor so trenchant as this, but yet of practical use, could be drawn between the different classes of symptoms of the same order, *i. e.*, between the different kinds of localised paralyses on the one hand, and of localised convulsions on the other.

In order to formulate what I mean, I will call attention in the first place to the fact that those functions of the brain which are relatively highly specialised and complex in character are more likely to suffer disturbance than the less highly specialised and complex, or, as one might say, more fundamental functions.

Thus, it was long ago pointed out by Dr. Hughlings Jackson, and is, I suppose, generally admitted, that, given an irritation in the arm or leg area leading to an epileptic attack, the attack will be most likely to begin with the thumb or

[1] It is, of course, important to recognise that paralysis may be "indirectly" produced by pressure and disorders of circulation. This subject has been carefully studied by Wernicke, in his Gehirnkrankheiten. Inhibition is also an occasional cause.

fingers in the one case, and the toe in the other, as having more highly specialised[1] functions than the other segments of the limb, and as being represented by groups of ganglion cells, that, in order to do the work for which they are designed, are in a state of what might be called physiological instability.

Although this principle is generally admitted, I do not think that the facts and corollaries related to it have been sufficiently worked out, especially as regards their practical relation to the localising doctrine.

Thus, if it is true that the complex movements of the fingers are, on the one hand, more easily set in action, and, on the other hand, more easily paralysed by slight irritation of a corresponding cortical area, or of associated cortical areas at a distance, than the less mobile muscles of the shoulder, then a localised convulsion or localised paralysis of the shoulder would have a greater localising value than a convulsion of the muscles of the hand, *i. e.*, would more surely indicate the presence of an irritative lesion at the shoulder centre, than a convulsion of the hand muscles would indicate a lesion at the hand centre; and such is, I believe, the case. Under many circumstances, to be sure, the error in the latter estimate would be unimportant. If we have to deal with a spasm localised in the thumb or fingers, and conclude that the lesion is at a certain spot, whereas it is really a few millimetres away, or covers a larger area than we supposed, and caused a convulsion in those parts only on account of their special irritability, the operation may nevertheless be successful, and we may never discover our mistake.

Indeed, there must be few tumor-operations where the convolutions near the growth are not more or less displaced, and often they are broadened to twice their natural size, or flattened to the thinness of cardboard, so that minute localisation on the outside of the head would be impossible.

[1] It is not improbable that some better expression than "highly specialised" could be found to represent this idea. The underlying notion is, that the movement of the whole arm, for example, usually culminates in that of the hand, as regards those acts in which the cortex cerebri is specially concerned.

There are cases, however, where this error is of importance, —those, for instance, where convulsions in the head are excited by pressure transmitted from a considerable distance, or by oedema and anaemia. This occurred in a case in which Dr. H. H. A. Beach operated at my request, as a matter of last resort for a supposed tumor of the frontal region. I had been led to this diagnosis by the occurrence of a disorder of speech, wrongly interpreted as motor aphasia, which had recurred at intervals throughout the whole course of the case, and by a twitching of the flexors of the right hand, associated with a slight but distinct paresis of the finger extensors. These latter symptoms were of late appearance, not showing themselves, in fact, until the patient was semi-comatose, but they recurred frequently through two or three days. The tumor was found, post-mortem, in the inferior parietal lobule just in front of the angular gyrus, separated by a space of three quarters of an inch from the motor area.

The case has been published,[1] but in view of this meeting I have sought and obtained some facts about the history to which I shall refer later, which might, I think, have led to a fairly correct diagnosis had they been thoroughly utilised.

In striking contrast with this case, where convulsive movements of the fingers with paresis of the extensors were set up in consequence of pressure from a distance, I will refer briefly to another,[2] in which a convulsive action at the shoulder occurred, of several minutes' duration, not attended by complete loss of consciousness, but associated with slight tonic contraction of the trunk muscles. This also took place at an advanced period in the course of the case, though not in the pre-terminal stage. I witnessed the convulsion myself almost throughout, and had it not been that this was the only attack of the kind that had been known to occur, though there had been many others of a more general character, we should have considered it, taken together with certain other of the corroborating signs, as sufficient warrant for operating.

[1] Boston Med. and Surg. Jr., 1890.
[2] Ibid.

Had we done so, we should have come directly upon the tumor, which lay at the posterior end of the middle frontal convolution, and had rolled over the upper edge of the hemisphere towards the falx, strongly compressing the intervening parts.

My thesis, which I shall be glad to see sustained or contradicted, is, that this shoulder convulsion might have been considered, for the reasons I have stated, as a localising sign of a high degree of value, in spite of the fact that no other attack of this character was seen. Convulsions confined to the shoulder are rare, but in the few recorded instances of which I have seen reports, there has been a distinctly localised cause; whereas, there are a number of cases on record where convulsions beginning in the hand or face were apparently due to lesions quite a little distance from where one would have expected to find them. Several instances of this are recorded in Rolland's monograph on Jacksonian epilepsy. One case, reported by Dr. Hughlings Jackson, is especially important.[1] It is the case of a large superficial growth in the leg and trunk area, and most of the attacks began, as usually happens, in the toe, and spread upward over the leg. They would next involve the arm, but instead of appearing first in the parts represented in that part of the arm area nearest to the leg area, they first affected the fingers, and then the arm. Sometimes the fits began in the hand, and sometimes, again, they began by a sort of aphasia—a prolonged attack of speechlessness without loss of consciousness. I shall revert again to the worthlessness of such attacks of speechlessness as localising signs, even when, as here, they usher in the attack, or where, as in the case of my patient with tumor of the inferior parietal lobe, they constitute the whole seizure. As regards convulsions beginning at the shoulder, it must be admitted that, though they are rarely excited by organic irritations at a distance, and are certainly less easily excited even by lesions close to the shoulder area than the convulsions of the toe, hand, fingers, or face are, yet they do occasionally occur spontaneously without gross lesion of the cortex. Such a

[1] Brain, 1882-'83, 364.

case is reported by Baxter.[1] This, however, only serves to call to mind how infinitely more numerous are the spontaneous fits beginning in the hand, face, or foot. It should also be noted, as one of the unexplained phenomena of cerebral pathology, that some lesions cause no localised convulsions, while others, of apparently the same kind, excite a great number. Even a superficial cortical or meningeal lesion of considerable extent may cause convulsions beginning in the hand, or confined to it.

Another kind of evidence that cortical areas corresponding to highly specialised movements have a special irritability is furnished by direct physiological evidence of an important kind. Thus, Paneth[2] and, according to him, Vulpian also, have found the facial centres in the case of the dog more irritable to electricity than other areas,—so much so, that Paneth says it brought quite a disturbing element into some of his experiments. I shall refer again to this point, as bearing on the question of electrisation of the cortex on the operating table for purposes of localisation, but now will simply throw out the question whether these differences in irritability have not perhaps been the cause of misconception with regard to the finer points in localisation, as, for example, the relation of the extensor area to the flexor area. It has become well known, mainly through the admirable experiments of Hooper and Bowditch,[3] of Boston, on the varying effects of stimulation of the recurrent laryngeal nerve under different conditions of etherisation and rapidity of interruption of the current, and of Bowditch, Perkins, and Ellis[4] on "The Action of Sulphuric Ether on the Peripheral Nervous System," especially of the frog, that where the same nerve supplies antagonistic sets of muscles, the action of either set may be made to predominate by changing certain conditions of the experiment, and especially by giving ether in considerable quantity. I am not aware that these experiments

[1] Brain, 1882.
[2] Pflüger's Archiv., 1888.
[3] N. Y. Med. Jr., 1885–'88.
[4] Amer. Jour. Med. Sciences, 1887.

have been systematically repeated with the cortex of the brain, though I have assisted Drs. Bowditch and Hooper in making one attempt to do so; but the observations bear new and important testimony to the difference in vulnerability between the flexors and the extensors, and the nervous arrangements for their innervation, which should not be lost sight of. It will be remembered that Bergmann [1] has recorded an interesting case, in which he excised for epilepsy an area in the posterior central convolution, which he considered purely on general grounds to be the centre for the extensors of the fingers; and, in fact, the extensors were powerless immediately after the operation, though the patient did not recover from the epilepsy. The post-central convolution is not, however, the place where the electrical observations of Mills,[2] Lloyd,[3] and Nancrede [4] on the human subject have shown the extensors of the fingers to lie, and the question is whether this paralysis in Bergmann's case was not an affair of greater vulnerability, or exclusive representation in the cortex, such as makes the extensors suffer more than the flexors in ordinary hemiplegia. In support of this view, I would again recall the fact that in my patient already alluded to, the disordered circulation and pressure due to a tumor at a distance excited clonic spasm of the finger flexors, and paresis of the extensors. A similar case of paresis of the finger extensors, indirectly due to a tumor of the temporal lobe, and passing away after operation, is reported by Barker.[5]

A patient was recently treated at the Massachusetts General Hospital, in the service of Dr. A. T. Cabot, for a severe fracture of the occipital bone, leading, as the autopsy showed, to multiple contusions and small haemorrhages, with small spots of softening, over the surface of both hemispheres. I examined the brain carefully, and can assert that the motor areas for the hands were not involved in any gross lesions,

[1] Archiv. für Klin. Chirurgie, 1889; Hirnchirurgie.
[2] Am. Jr. of Med. Sc., 1888.
[3] Ib.
[4] Ib.
[5] Brit. Med. Jr., 1887.

and yet on the day before his death, although able to move his arms freely, he showed a striking picture of paralysis of motion of the fingers, and especially of the extensors. On these grounds, and in accordance with the principle which I have been trying to illustrate, I suggest it as probable that the spasm of the extensor muscles and paralysis of the flexors are more valuable than the reverse conditions as localising signs of cortical lesions. In speaking of paralysis of the extensors, the distinction should probably be made between the interosseous extensors and the forearm extensors. Some clinical reports speak of "the claw hand," as met with in cortical paralysis, and it is not impossible that the intrinsic extensors would behave differently from the long extensors.

To sum up, I suggest, as a rule to which many individual exceptions could no doubt be found, that the following list indicates somewhere near the relative liability of the parts mentioned to be thrown into convulsion by irritations in their neighborhood:

1. Hand (*a.* flexors; *b.* interossei; *c.* extensors).
2. Face (*a.* zygomatics; tongue (?); *b.* platysma).
3. Toe and foot.
4. Elbow.
5. Leg.
6. Shoulder.
7. Trunk.

Conversely, convulsions beginning in the parts toward the lower part of this list would be of greater value as localising signs than convulsions of the hand and face.

As, I believe, another instance under this same general principle, I beg leave to contrast sensory and motor aphasia, or the power of comprehending spoken language and the power of accurate speech, with regard to their value as localising signs. If we consider for a moment the language function as a whole, and entirely apart from its anatomical representation, we may fairly say that the comprehension of speech is certainly a more "fundamental" element of this function than the power of speech. It is earlier and more

readily acquired, and requires less subtle and less perfectly adjusted cerebral activity for its maintenance. It is, therefore, less likely to suffer from general pressure and anaemia, and less liable to be disturbed in the initial discharge of an epileptic seizure. It is obvious that this principle, so far as it is a logical one, is virtually a corollary of the theory of "devolution" of Hughlings Jackson, and is based on similar reasoning to that followed at various times by Spencer, Ross, and many others of that school. It would not indeed surprise me if the neurologists present had already adopted what was of real value in the idea, although I am not aware that any such analysis has been actually published. The spoken word, falling upon the ear, drags out, as it were, with little conscious effort on the part of the hearer, a number of associations, sufficient for working purposes at least; whereas, in order that ideas should be expressed even so accurately as not to excite attention, many cerebral processes must converge, as it were, simultaneously, and with a certain degree of force. It may be sufficient for the practical purposes of the sportsman if he brings down his game, no matter where it is wounded, but to penetrate the vital part with a single bullet will call for far higher skill. For accurate speech, it is not only necessary that the ganglionic centres, both sensory and motor, and the association tracts uniting them, should be intact, but, as the interesting observations of Grashey[1] have shown, the storage power on the part of the nerve cells must not be deficient. If it is deficient, the impressions and concepts in the mind will fade out of existence before they have found expression, and the memory will have to be constantly refreshed by the actual presence of the concrete object of thought. That auditory speech-symptoms are of greater localising value than motor speech-symptoms, is, as I think, beyond a doubt; and the fact would be more generally recognised if loss of speech were not so much more striking and more familiar than loss of comprehension, and if we were not still strongly under the influence of Broca's remarkable dis-

[1] Arch. für Psychiatrie, etc. 1887.

covery, which, in spite of all that has been written since that day, chains every disorder of speech function, in the minds of most medical men, to the notion of a lesion in the third frontal convolution. We should gratefully recognise the penetration and insistance of Wernicke, who placed the doctrine of sensory aphasia on a sure foundation, and the skill and industry of those who have given clearness to its expression, and have collected pathological data in its support. Prominent among the latter is your colleague, Dr. Starr,[1] whose work will long be referred to for its accuracy of thought and expression, and for the thoroughness with which it utilises all available facts.

The clinical point which I desire to make is this: If, in a given case, we have a *disorder of speech* of which we desire to make use as a localising sign, we should resist the temptation to infer a lesion of the frontal lobe until we have thoroughly probed the question whether the symptoms may not have been due to general pressure or anaemia, to fatigue, to inhibition, to interruption of association-tracts, and, finally, to a lesion of the special centres for speech-comprehension in the left temporal lobe. If, on the other hand, we find *disorder of speech-comprehension*, we can infer with a good deal more probability a lesion in the temporal lobe (especially the left), or its immediate neighborhood.[2]

It is true that the motor aphasia caused by impairment of the sensory element in the language function is not identical with the motor aphasia observed in typical cases of injury limited to Broca's area. Still, it remains true, I believe, that among the puzzling mixtures of *emissive* speech-symptoms, which many cases of aphasia present,—symptoms of paraphasia, diminished vocabulary, substitution of general for special terms (Jackson), loss of nouns, alliterations, and the like,—there is none which should rank as a localising symptom of the same value with the loss or marked impairment of

[1] Brain, 1889.

[2] I do not think it necessary to discuss the possibilities of trans-cortical and sub-cortical sensory aphasia (Wernicke, Fortschritte der Med., 1886-'87), as I am only trying to illustrate a principle, and not studying the details of localisation.

speech-comprehension. It is true that tumors, even at the distance of the frontal lobe, occasionally cause symptoms of sensory aphasia, as in Case V of Oppenheim's[1] recent and valuable collection, but this only shows the caution with which all rules for localising are to be applied, especially in the case of tumors.

Not only does the loss of auditory impressions entail aphasia, but, as has already been intimated, the loss of visual impressions may have a similar effect.

The subject is too complicated to enter upon here, but I am now compelled to believe that if I had had the importance of these possibilities sufficiently in mind when studying the case to which I have above alluded, my diagnosis would have been a different one. The tumor, primarily subcortical, but eventually cortical, lay at the posterior border of the inferior parietal lobe, directly above the posterior end of the fissure of Sylvius. The first symptom, and one which recurred at intervals, was an attack of speechlessness lasting for five or ten minutes. The patient declared afterwards that he understood what was said during the attack, and could have expressed himself in writing; and that on one occasion he did write, though I do not know to what extent. Both of these statements were probably far less strictly true than he believed. Speech in the intervals of the attacks was rather slow and hesitating, enunciation was sometimes imperfect, and occasionally false words were used. I saw him but twice, and noticed no reason to suspect loss of visual impressions, but as he kept at work which involved book-keeping, not without more difficulty, as I then thought, than his general condition would explain, I did not inquire sufficiently into that point, and was still further misled by the motor symptoms mentioned above as involving the flexors and extensors of the right hand. I have since learned that he had difficulty in recognising his wife and friends, though, curiously enough, the fresh advent of a friend or relation not constantly seen would occasionally rouse him into a better

[1] Arch. für Psych., Vols. XXI, XXII.

recognition. The mention of a person's name would convey a faint impression of his personality, but these impressions were of short duration, and soon faded away. On one occasion, when wishing to use a tooth-brush, he took down his razor and held it under the running water before discovering his mistake, and this while still attending to his work. There was considerable impairment of reading and ciphering, even quite early, but only very little loss of the comprehension of speech. It is now evident to me that the disorder of the associated tracts connected with the visual apparatus should have been made the basis of the localisation. Attacks of temporary speechlessness are certainly of little value as localising signs.

There are other parts of this important subject on which it would be interesting to speak, but I will ask your attention only to one or two practical points. I have already alluded to the physiological observations of Paneth on the varying irritablility of different cortical areas. I wish now to refer to the further experiments of Bubnoff and Heidenhain,[1] quoted by Prof. William James in the interesting chapter on the Summation of Stimuli in his recent work on psychology. It was found by these observers not only that a series of quickly recurring stimuli had a cumulative action on the cortex cerebri, but that when the electrical irritation of a given cortical area failed of its effect in calling out a certain contraction, that result would follow if the skin over the muscles concerned was gently stroked, or if a sympathetic or semi-voluntary movement of the limb happened to take place in the course of the experiment. The practical value of this suggestion, in view of the rapidly diminishing irritability of the exposed cortex, needs no reinforcement, and it would have been welcome in a recent case of operation for epilepsy, done by Dr. J. C. Warren, at the Massachusetts General Hospital, on my suggestion. It manifestly gives the explanation of the interesting observation by Dr. Lloyd,[2] and another

[1] Pflüger's Arch., 1889.
[2] Am. Jr. of Med. Sc., 1888.

by Dr. Nancrede,[1] both of whom found that they could excite the same convulsions as those from which the patient had suffered by electrical excitation of a single point on the cortex, while in Lloyd's case the rest of the cortex is said to have given positively no response. I had already thought of the possibility of finding such an irritable spot as this before seeing either Lloyd's or Bubnoff's observations, and had tried to do so in the case just alluded to, but was only partially successful, probably because too long a time elapsed before the electrodes were applied. The case was one of that interesting class of localised epilepsies supervening on infantile hemiplegia, where the epileptic tendency is so strong and yet the tendency of the discharge to spread laterally is often so slight, possibly on account of the relatively feeble activity and associations of the affected parts. It is possible that the morbid state of the cortex partially explains its failure to respond to electricity.[2]

It has occurred to me that we might perhaps borrow another leaf from the physiologists, and try to intensify the cortical activity, either before or during an operation, when it is desired to discover the area which is responsible for the initiation of epileptic attacks, by giving one of the drugs which have been found to have that effect.

Unilateral neuritis has been held, I believe first by Hughlings Jackson, to have some significance as indicating the presence of a tumor of the opposite side of the brain. The reverse was true in my case of tumor of the middle frontal convolution, and I have therefore looked through a large number of reported cases, and found that, as Oppenheim[3] points out, the facts are, if anything, the other way; but the sign is really of little value.

The question whether an operation will be performed will always be largely determined by the temperament of both physician and patient, as well as by social considerations. Occasionally it happens that a tumor is found to compress the

[1] Am. Jr. of Med. Sc., 1888.
[2] Compare Oppenheim, Berl. Kl. W. Schr. 1890, p. 677.
[3] L. c.

brain, and yet has no attachment to it, and only a very trifling one to the floor of the skull. In such a case, an operation would probably restore the patient to absolute health, and such a chance is of course worth taking. It is often said of many surgical operations, that they should not be undertaken except in favourable cases for fear of bringing surgery into disrepute; but the reputation both of surgery and of the surgeon will not suffer permanently at the hands of intelligent people.

Oppenheim, of Berlin, has recently published an analysis of a series of twenty-two cases. Like almost all the German physicians, he takes a conservative position on this subject, yet he says that in two cases of this series an operation would have been, in all probability, successful. Two cases of twenty-two is certainly a good percentage.

Now, let me say a word with regard to certain observations which are usually made on patients where tumor of the brain is suspected. Thermometric observations of the surface-temperature of the head should be made repeatedly, for there are many factors which might affect the results. I have now a case in mind where the thermometer marked at one time a higher temperature on the part corresponding to the tumor than on the opposite side, while at another time no such elevation of temperature was present. Again: Before deciding that there is no weakness on one side of the body as compared with the other, we should not only have the patient squeeze a dynamometer, but should cause him to exert a sustained effort for a sufficient length of time for us to judge of this point. Tests of skill, such as rapid movements of the fingers, should also be tested carefully and methodically.

I come now to speak of the prognosis in epileptic cases.

It is well known that in some of these cases the simple removal of the bone has brought about considerable benefit, even where no portion of the cortex of the brain has been removed, as Dr. Keen has done on several occasions. These observations are not generally held to be of much value, since the patients have not been followed a sufficient length

of time. I have communicated with a number of persons who have operated and removed portions of bone which appeared perfectly healthy, and two of these gentlemen have answered. One says that his case is now, after a long period of years, perfectly well; the other speaks of two cases, both of whom were considerably benefited by the operation. In the young girl with hemiplegia and epilepsy supervening, to whom I alluded, the brain was exposed with the intention of removing a portion corresponding to the epileptic area. There were a number of distinct adhesions between the dura mater and pia mater, and lines of thickening along the vessels, showing that slight meningitis had existed. These adhesions were broken up, and the electrical examination not proving satisfactory, the wound was closed. The patient improved for six months, although she had a slight numbness in the hand. Then she had one attack. It remains to be seen whether or not there will be permanent benefit. I cannot say whether these slight adhesions were the cause of the epilepsy, or whether the disease will eventually develop in the usual way; but I think it will probably not do so, as these cases are usually more amenable to treatment after operation.

QUESTION I.

WHAT ARE THE PRESENT MEANS OF LOCALISING INTRA-CRANIAL LESIONS?

QUESTION II.

WHAT IS THE NATURE OF THE CHIEF INTRA-CRANIAL LESIONS (HAEMORRHAGE, ABSCESS, TUMORS), AND HOW CAN THEY BE DISCRIMINATED?

Discussed by CHARLES K. MILLS, M. D., of Pennsylvania.

Of the five questions propounded in the announcement of this discussion, Dr. Keen has considered, and the surgeons who follow him will probably chiefly consider, the last three, which refer more particularly to matters which concern the surgeon—to the indications and contra-indications for operations, to the best operative procedures, and to the results of operation—leaving to those who, like myself, represent the neurological side of the discussion, the presentation of the points diagnostic and etiological included in the first two questions, which ask, What are the present means of localising intra-cranial lesions? and What is the nature of the chief of these lesions, and how can they be discriminated?

To answer fully these two queries would be simply to summarise the entire literature of encephalic localisation. Probably what is expected, or, at least, what should be attempted, is to say something about the more recent additions to our knowledge of localisation, and also to give some experiences in the use of the means of localisation for practical purposes. Both through the work which has come directly into my hands, and through the kindness of my many neurological and surgical friends, I have had unusual opportunities, par-

ticularly during the last two years, of witnessing efforts, successful and unsuccessful, to apply the principles of cerebral localisation to the guiding of the knife and trephine of the surgeon.

At the meeting of the Congress of the American Physicians and Surgeons in Washington, in September, 1888, I had the honour to open a discussion on Cerebral Localisation in its Practical Relations. While the two years since have been a period of extraordinary activity in efforts to solve the practical relations of cerebral localisation, comparatively little that is new has been added to our anatomical and physiological knowledge of the subject. If, however, we have few novelties, much good work has been done in the way either of breaking down or of reëstablishing old lines. The Croonian lectures of Dr. Ferrier, recently published both in the *Lancet* and in book form, deserve to be especiallly remembered in this connection.

Up to the time of the meeting of the American Congress in 1888, according to the table of Dr. Roswell Park, sixty-three operations guided by cerebral localisation had been performed. In the twenty-five months which have passed, the number of operations has been easily trebled or quadrupled—an almost dangerous increase. The subject has been unduly exploited, and production has been over-stimulated. Studying the records of operations, and calling on personal experience, I find that the percentage of successes is neither as great as it should be, nor has it increased as it should have,—rather, perhaps, it has somewhat decreased, owing, partly, at least, to the greater incentives and tendencies to operate. This, however, should not discourage either the surgeon or the neurologist: it is what we see in the wake of every great advance in the application of general or special medical knowledge to surgical procedure. The surgeon follows so hard and so fast upon the diagnostician, that he treads upon his heels or passes him by, while the diagnostician, too much elated by his position as guide and interpreter, for a time may lead the surgeon into uncertain or dangerous

pathways. Much that is valuable has been done—much to relieve distress, and much to advance the art of medicine and surgery. While failures have been many, we have learned both through our sure steps and our missteps.

Perhaps I could not do better, in directing attention to our means of localising intra-cranial lesions, than briefly to discuss some of the sources of error and causes of failure in trephinings which presumably have been guided by the facts and principles of localisation. Of course, in referring to these I will speak chiefly from the stand-point of the neurologist, and, therefore, mainly that of the diagnostician. I will pass by all glaring and flagrant mistakes, the result of gross ignorance or foolish temerity.

These sources of error and causes of failure might, perhaps, be conveniently arranged into a half dozen classes. In general terms, they are all the result of a lack of neurological knowledge of exactness, or the result of one-sided inferences. The most of them may be considered as caused (1) by giving too much weight to certain classes of symptoms, as, for example, the so called signal or initial symptom; (2) by giving relatively too much importance to motor symptoms; (3) by considering only the symptoms of late invasion in lesions growing from latent to active areas; (4) by overlooking multiple, diffused, or diffusing lesions; (5) by operating for incurable cases of arrested development; (6) by not fully recognising certain pathological conditions, as syphilitic or alcoholic disease of blood-vessels, cells, or neuroglia.

The so called signal or initial symptom, while of great value, proves sometimes a misleading light. The motor signal symptom has been made use of in a large number of cases to guide the surgeon, sometimes successfully, but, I am almost inclined to say, almost as often not. It is, undoubtedly, an excellent aid in active irritative lesions, particularly in their earlier history, but in some cases the symptom changes as the lesion progresses. An early irritative lesion after a time gives place to a destructive one, and the point of cortical irritation shifts. A lesion may grow from a certain

focus and give a certain symptom, although it never involves more than a small portion of an irritated centre, soon developing away from its first site,—the signal symptom, however, remaining.

This was apparently the case in a patient of Dr. Morris J. Lewis, of Philadelphia, whose history was presented at the meeting this year of the American Neurological Association as his thesis for admission. The initial symptom in this case, from first to last, was a flexure of the fingers, but, after years, the autopsy showed that the lesion involved chiefly the facial areas, only grazing the centres for the upper extremity.

It must be remembered that in every case of either hemispasm or monospasm (whether reflex, dural, nephritic, toxic, or hysterical), the spasm really or apparently begins with an initial symptom in the limb or face. This may indicate that the beginning of the cerebral discharge occurs in the area of the cortex, which is the seat of the representation of the movement, but it would be unwise always to operate with such indications,—the true cause of the spasm being either a general condition or a localised one in some distant peripheral area. My own experience would lead me to rely most upon the signal or initial symptoms in tumor and fracture, cases in which localised irritation is often extreme.

Dr. Putnam has given in his remarks the explanation of the unreliability in some cases of the signal symptom. The centres for highly specialised movements have a high degree of irritability, and hence are likely to be affected by lesions even of adjoining areas; also, lesions in the areas for grosser movements are more significant because the highly specialised centres are likely to discharge first. It remains for us now to discover finer methods of fixing the value both of initial symptoms and serial or successive phenomena.

Lateral movements of the head and neck occur, and, apparently, sometimes at the very outset of a spasmodic seizure. In the cortex is a focus for the representation of the movements of turning the head and eyes to the opposite side,

probably in the second or mid-frontal convolution, but we must be chary of using this symptom as a guide to operation. Occasionally this has been done. This conjugate movement is one which occurs synchronously with various lateral movements of the body, however produced, and it may be a coincidence, apparently primary, in a case where the real initial phenomenon is either in the upper or in the lower limb. If asked when conjugate deviation might be given a cortical localisation, I should say, probably only when the movement takes the form of an isolated, tonico-clonic spasm, and stands almost alone as a manifestation. Some of the cases of spastic torticollis may be due to cortical irritation.

Another cause of failure in attempts to apply the principles of localisation has been in giving relatively too much importance to motor localising symptoms. Too much stress is sometimes placed upon these symptoms, particularly on more or less circumscribed spasmodic manifestations. Motor symptoms are the simplest, most readily understood, and those which have most frequently furnished a clue to the proper site for operation. Cutaneous sensory phenomena and symptoms belonging to the special senses are more likely to be overlooked, and, with one or two exceptions, are not as striking when noticed as those which are referable to the motor sphere.

In a recent case reported by Dr. Beach, and to which Dr. Putnam has referred, the growth was localised before the operation as probably in the anterior lobes opposite the lower part of the central convolution, and probably just above the third frontal; but its boundaries when discovered were found to be farther back; it was chiefly situated in and beneath the inferior parietal lobule. One error in this case probably arose from overlooking the true character of the speech disturbance, which was a prominent and early symptom. Sufficient attention was not paid in this case, and often is not in others, to the destruction of the intra-cerebral tracts, the associative channels connecting the visual and auditory areas of the cortex with the motor or emissive speech regions.

Dr. de Schweinitz and I (Jour. Nerv. & Ment. Dis., Jan., 1890) reported a case with dyslexia, hemianopsia, and Jacksonian epilepsy where this caution with reference to motor localisation was applicable. My localisation was in the centrum ovule, at a point near the parieto-occipito-temporal junction, perhaps above the position where the lateral ventricle joins the posterior horn. This case presented five important features: (1) Jacksonian spasm, confined chiefly to the left hand and arm,—in the first attack, at least, continuing for some time before consciousness was lost; (2) temporary paresis of the arm and leg upon this side; (3) right homonymous hemianopsia; (4) absence of Wernicke's symptom; (5) dyslexia. The hemianopsia was cerebral.

Let me say a few words about intra-cranial localisation in cases of abscess. In not a few cases of cerebral abscess, symptoms—either motor, or sensory, or special—may decide in favor of operating, and, at the same time, may not properly guide to the seat of operation. Nearly all active, brain-localising symptoms in aural or mastoid disease, unless it be word-deafness, are the result of the extension of purulent processes.

An excellent rule for trephining in cases of brain abscess connected with aural affections is laid down by Barker, who goes so far as to say that nine tenths of all the abscesses of the cerebrum are situated within a circle three fourths of an inch in diameter, the centre of which is one and a half inches behind and above the centre of the meatus auditorius. This is, perhaps, putting it too strongly, but it is not far from the truth, and the rule bears upon the question of the mistake which is sometimes made in trephining, particularly when the operation is guided by motor symptoms.

When motor symptoms appear in such cases, they are usually the result of the extension of the abscess to a considerable distance from its place of origin, and also from its focus of greatest suppuration. If trephining is performed, it should, as a rule, be done one to three inches back of the point indicated by the motor symptoms, or else two trephinings should

be performed, one from a consideration of the motor symptoms, and the other at the probable primary seat of the pus formation near the ear.

In cases of abscess—whether aural, traumatic, or from whatever cause—the possibility of distant infection causing either abscesses or purulent meningitis should not be overlooked. Occasionally in such cases either the primary or secondary abscesses are very deep seated.

In one case seen in consultation, a distinctly circumscribed abscess, about the size of a walnut, was present in the frontal lobe, its posterior limit being in a line with the ascending branch of the Sylvian fissure. Operation was performed above the orbit, and a grooved director was thrust nearly two inches backwards, and just failed to reach the anterior wall of the abscess. While this patient had the general symptoms of cerebral abscess, and the clear history of an injury of a character likely to produce such a lesion, the localising symptoms were confusing, and the autopsy showed one reason of this to be the presence of an infectious meningitis involving the anterior surface of the pons-oblongata, and therefore giving some slight cranial nerve symptoms.

In connection with this portion of the discussion, I might quote the remarks of Osler (Canadian Practitioner, May 1, 1889). "Abscess," he says, "is usually solitary, though I have seen in the temporo-sphenoidal lobe two separate collections of pus. Next in frequency, the cerebellum is involved, most commonly in the hemisphere of the same side. In both regions an operation is feasible, and, in the former, has been successful in a number of cases. Two difficulties exist,—first, that the cerebral condition following mastoid disease (otitis media) is sometimes purulent meningitis, which, confined to the temporo-sphenoidal lobe, may cause symptoms simulating those of abscess; and second, that in otitis media curious cerebral conditions may arise, as mental dulness, associated, perhaps, with fever and drowsiness, which may simulate abscess, and yet from which the patient may recover completely."

It is an error, at least in the majority of cases, to operate guided by certain localising symptoms in the spastic and paralytic affections which are congenital or date back to infancy. Among others, Bullard, Keen, Mitchell, Morton, Roberts, and the writer have operated in such cases, obtaining sometimes temporary relief from spasm.

Sachs, speaking of surgical interference for cases of hemi-epilepsy due to cerebral, or, at least, to encephalic lesion, states the matter fairly when he says that "In very recent cases in which there is no prospect of spontaneous recovery, and in which the character and site of the lesion can be accurately inferred, the idea of operation might be entertained, but it is wholly inadvisable in cases of long standing in which symptoms of long standing have been permanently established."

Early operations in some of these cases would be of great possible value. Haemorrhages (cranial, meningeal, and cortical) are the not infrequent cause of the hemi-plegic, spastic, and epileptiform cases which are included under the general head of the palsies and spastic diseases of early life, and greater attention, at the times of their occurrence, should be paid by the physician to the recognition of such lesions and the possibility of their operative relief. The point made by Sachs, that convulsion in such cases is usually a cortical affair, is correct; but it is not always cortical. Occasionally haemorrhage into the interior of the brain, both in adults and children, will give rise to convulsions, unilateral or general, although very rarely to monospasm.

In most of the chronic spastic, paralytic, and convulsive cases in children, whatever may have been the initial lesion, the late condition is chiefly porencephalic. Gyri, and even sub-cortical white matter, have disappeared through atrophic processes, and cavities large or small, usually of irregular shape, are present. It is reasonable to conclude that a hole in the brain cannot be much improved by making that hole larger, or by exposing it to extra-cranial influences.

In a case recently reported in one of the medical journals, a tumor was diagnosticated and trephining performed. The

patient died, and the autopsy showed that a very large portion of one hemisphere had entirely disappeared. The case was one of porencephaly. Operations in some of these cases have peculiar dangers, owing to the disturbance of the balance of pressure within the skull, which is kept up before the operation by the *oedema ex vacuo*, or effusion, which takes the place of the brain tissue which has disappeared.

A careful review of operations shows that probably the greatest success during the last few years has been in trephining for endo-cranial haemorrhage. An important reason for this is to be found in the fact that often in these cases external signs of injury are present. That work in antisepsis, and in cerebral localisation, has stimulated and made more popular and successful such operations is shown by the fact that up to the time of Mr. Jacobson's elaborate paper, only ten successful operations had been performed during one hundred years, while scores have been done since. A few of these operations have been performed guided entirely by localising symptoms. In a number of cases slight scalp wounds have been present, but no external evidences of fracture. Occasionally failures result in these traumatic cases, and for several reasons. The fact is not always fully considered, that in many cases of depressed or non-depressed fractures haemorrhages take place, not only at or in direct connection with the places of injury, but also at various positions more or less remote. In other words, multiple haemorrhages are of somewhat frequent occurrence. Bearing this fact in mind, the site for operation must be sometimes selected without reference to the site of injury, and entirely by localising symptoms.

As a third source of error and failure in cerebral operations I have mentioned the mistake of considering only the symptoms of late invasion by lesions growing from latent to more active areas, and remarks already made in part apply to this point. The error arises chiefly through not fully considering the long existence of a lesion in a latent zone, as, for example, the antero-frontal or the right temporal lobe.

In a case reported by Wood, to which brief reference has been made in a foot-note in a former paper by the writer, the patient had for a long time general symptoms of brain trouble, but, only a short time before operation, developed left homonymous hemianopsia, without Wernicke's symptom. Operation was performed with a view of reaching the cuneus or occipital convexity, guided by the hemianopsia. The patient subsequently died, and an enormous tumor was found, which had started in the second or third temporal convolution. A moiety of the temporal lobe was probably destroyed, and the radiations of the tumor were found in the occipital lobe, and to one of these secondary ramifications the hemianopsia was doubtless due. Several failures in operation, due to a similar cause, are now on record. The diagnostician must, therefore, not be misled by clear-cut, enticing symptoms which come late, perhaps, he thinks, to clear up the diagnosis, but probably, on the contrary, only to lead him from the solid ground whence the lesions developed.

Several recorded, and more unrecorded, failures have been the result of overlooking the presence of multiple, or diffused and diffusing, lesions. I cannot stop to discuss this matter freely, but the most important of these misleading lesions are,—(1) Multiple syphilitic or sarcomatous growths; (2) multiple abscesses, or abscesses associated with infectious meningitis; (3) disseminated or diffused meningitis, usually tubercular; (4) haemorrhage, associated with fracture; (5) multiple haemorrhage, the result of severe concussion.

In several instances I have known trephining to be performed in cases of diffuse alcoholic or syphilitic disease of the blood-vessels or membranes. In two of these cases convulsions were present; in one, the spasm was purely unilateral; in another, it began unilaterally and ended as a general seizure. The history and the symptoms, mental and physical, in both of these cases pointed clearly to chronic alcoholic or syphilitic disease. In one, the persecutory delusions and general deterioration of alcoholism were present; and in the other, phenomena of gradual development—

psychic, articulatory, and motor—clearly defined a syphilitic dementia.

Operating in tubercular disease of the brain vessels or membranes has led to failure. Owing to the diffuse or multiple character of tubercular encephalic lesions, only a small percentage of cases offers any hope of success. Tubercular lesions are rarely isolated or solitary.

Of three hundred cases of brain tumor reported by Starr as occurring in persons under nineteen years of age, one hundred and fifty-two were tubercular—more than half. Eight of twenty cases of tumor of the brain reported by Osler were tubercular. Of twenty-eight cases of my own, seven were tubercular, and in every one of these cases the disease was either diffused or multiple in the brain; and in five, other organs were also invaded. Tubercular tumors are not infrequently cortical as well as basilar, and occasionally the disease extends along the finer ramifications of the cerebral arteries.

It is doubtful whether trephining for general paralysis of the insane will ever give results of any practical value. The most that can be hoped for would seem to be relief of certain paretic and spastic conditions, which are, as a rule, transitory. Paretic dementia is a chronic disorder, characterized by an association of somatic and psychical manifestations, which have for their ground-work chronic changes in blood-vessels and in nerve and other tissues, which cannot in any sense be ameliorated by such a rude, crude process as trephining. The temporary relief which is afforded by evacuating the cerebro-spinal fluid, or serum, which fills the spaces before occupied by brain substance, can only be passing.

CEREBRAL CONTUSION.

By Charles Phelps, M. D., of New York County.

I had occasion last winter to report a case of cerebral abscess, which, as it seemed to me, resulted from contusion by contre-coup, and to make certain observations which its pathology suggested. When invited some time since to participate in this discussion, I felt unwilling to trespass upon your limited time, as I had not the leisure to give to it the careful consideration which I conceived it to demand. As, at the last moment, I am again urged, by a distinguished member of this Association, to express an opinion in relation to some one of the pentagonal aspects from which the general subject of intra-cranial lesions is to be considered, I can do no less than consent, and can only regret that it must be so hastily and inadequately done. I shall again refer to cerebral contusion by contre-coup, though I shall be able to do scarcely more than to reiterate some part of what I said upon that previous occasion.

I shall use the term cerebral or phrenitic contusion to mean a traumatic bruising of the brain substance beneath the pia mater, precisely analogous to the bruising of the subcutaneous tissues. It may occur in the deeper parts or upon the surface of any part of the organ. It may occur in limited areas with well defined margins which are grayish in colour, softened and sprinkled with punctate ecchymoses, or minute ecchymotic spots may be diffused through a great part of the cerebral substance. It may be accompanied by more or less extensive laceration of the surface, or by the rupture of one or more vessels in the pia mater, from which a haemorrhage may occur sufficient to spread over the whole extent of the basilar and cerebral lobes. The contusion may be direct and

correspond to that part of the cranium upon which a blow has been received, or the force may be transmitted in a line continuous with that in which it acted upon the cranial surface, and the injury be inflicted by contre-coup upon the opposite side of the brain or at some intermediate point. It may accompany a cranial fracture, or not even a mark upon the scalp may exist to indicate a possibly fatal bruising of the intra-cranial contents.

It will be unnecessary, however, to dwell at this time upon its general history and characteristics. This lesion seems to have attracted less attention than from its frequency and importance it deserves. I have seen no special reference to it as a distinct lesion since its description incorporated in the article upon injuries of the head, and contributed by Mr. Prescott Hewitt to Holmes's Surgery. I do not know that I have met at any time with any direct reference to contusion by contre-coup as a complication of cerebral traumatism. It is possible that gentlemen of wider reading than myself may have been made more familiar with its recorded history. I am quite sure it has not attracted the special attention of my immediate professional associates. That contusion by contre-coup *is* both frequent and important, I was however enabled to demonstrate by several recent and well marked post-mortem specimens, as well as by cases which chanced to fall quite readily to my hand at about that time. One or two of those specimens I am enabled to present for your present inspection, and to one or two of the cases I shall beg to refer. I may first call attention to a very pronounced post-mortem specimen of limited contusion by contre-coup. It is of a man brought into my service at Bellevue in October last. A fracture had been produced by such violence as literally and completely to separate from each other the three portions of the left temporal bone. You will observe that it had been unattended with any considerable injury of the corresponding cerebrum, notwithstanding the tremendous force that must have been brought to bear upon it, while upon the surface of the other at a point directly opposite was a contusion and lac-

eration nearly three inches long by an inch and a half wide, which, when previously exhibited, was even then surrounded by evident miliary extravasations and discoloration. This man was brought to the hospital in a maniacal condition and died in coma. I am indebted to Dr. H. M. Biggs for another and very recent specimen, which exhibits contusion and laceration by contre-coup almost as well as does the one I have just presented. This is of a man who had sustained a simple fracture without depression in the left temporal region, and without injury of the brain or its membranes at that point. At the base upon the opposite side, however, the surface of the temporo-sphenoidal lobe is deeply lacerated and contused over an area of considerable extent. Another laceration is visible upon the anterior border of the temporo-sphenoidal lobe on the same side with the fracture. The haemorrhage from these lacerations has been sufficient to spread through the meshes of the pia mater over a considerable portion of the cerebral surface. Areas of slighter contusion than this may be readily overlooked in post-mortem examination, but when found and considered in reference to the point of local injury as manifested by lesion of the scalp, may be of medico-legal importance by indicating the direction in which violence has been inflicted. Cases of diffused contusion are even more likely to escape detection, and are quite incapable of being preserved for satisfactory exhibition at a later period. Almost coincidently with the occurrence of the case just mentioned, a man without evidence of injury of the head and considered an alcoholic subject, was entered at St. Vincent's, and discharged after refusing treatment. The next day he was refused work, as his employer considered him "too crazy to be trusted," and before night fell into the river and was drowned. Upon autopsy a fracture was found to extend from the foramen magnum to the left parietal eminence, while upon the opposite side the surface of the temporo-sphenoidal lobe was lacerated and contused. Another case will illustrate the third form of contusion in which extensive superficial haemorrhage occurs. In April last, a man, ad-

mitted to my service at Bellevue with a compound depressed fracture of the skull in the right parietal region, was found to have paralysis limited to the same side, complete in the lower extremity, less marked in the upper, but gradually becoming more profound. Trephining over the motor area for the leg upon the opposite side, revealed a clot from which the blood had trickled downward. It can hardly be doubted that this haemorrhage resulted from contre-coup. I might readily continue the recital of such cases, and extend the number of equally well marked post-mortem specimens, if time permitted or necessity demanded. I am led to believe, by gentlemen connected with the coroner's office, whose opportunities for observation are exceptionally large, that such lesions from contre-coup, with or without fracture of the skull, are often encountered in the course of their official investigations.

The occasional outcome of such contusions I can exhibit in the specimen of cerebral abscess from the case which served as the foundation of my former paper. The subject suffered fracture of the skull, and was trephined. The abscess which subsequently formed was diagnosticated and evacuated nearly four weeks later. In the course of each operation the exterior of the brain was examined with great care, and the integrity of the dura mater was established. In the second operation, after incision of the dura mater, thorough but unavailing inspection was made to discover some area of softening, or some minute opening which might lead to the cavity of the abscess. The incision was afterward made through firm cerebral tissue for a short but still perceptible distance into a corner of the cavity. Subsequent post-mortem examination showed this opening which I had made to be the only communication between the abscess cavity and the surface of the brain. The purulent formation must have resulted, therefore, from some additional and coincident traumatism, which must by exclusion have been limited contusion by contre-coup and secondary inflammation. I have record of a similar case occurring in my service at St. Vincent's hospital

in 1880, in which a contused scalp wound in the occipito-parietal region was followed by death eighteen days afterward, and the discovery of a small abscess in the centre of the cerebrum at a still greater distance from the site of injury.

Dr. H. M. Biggs, of the Carnegie Laboratory, possesses a specimen of abscess of extraordinary size, occupying almost the whole anterior cerebral lobe, and following a blow, in which the skull was intact and not even a scalp wound was inflicted. Here the contusion was very likely direct and possibly diffuse. Such cases show that cerebral or phrenitic contusion, coincidently produced at a greater or less distance from the site of an injury, is the cause of abscess and death in no inconsiderable percentage of cases. The early diagnosis is most obscure, and I believe at present generally impossible.

There seems to be no reason to suppose that assistance can be derived from the presence or absence of symptoms of concussion. There are cases of severe contusion in which there has been no concussion, or in which it has been so slight that it has made no impression upon the mind of the non-professional observer, upon whom the surgeon must rely for his knowledge of primary symptoms. So, too, there are cases in which concussion seems to be the sole and immediate cause of death, in which contusion, if it exists at all, is so inconsiderable and disproportionate that it remains undiscovered when the autopsy comes to be made. It is probable that concussion bears the same relation to contusion that it does to fracture or other organic lesion, and marks only the susceptibility of the subject's nervous system to cranial injury. Whether concussion can be manifest without some form of organic lesion is not certain, but there can be distinct contusion without recognisable concussion. From the frequency with which subjects of fatal contusion have been mistaken for simple alcoholics, and excluding those cases in which alcoholism has coexisted, it would seem that there is sometimes a resemblance between the primary symptoms of contusion and certain phases of alcoholic intoxication. No error of diagnosis

is more frequent than the confounding of cerebral injury with alcoholism, both in the police station and in the hospital; and nothing is more common than to find in these cases of error that the lesion is contusion. The evident symptoms of excitation, more or less rapidly passing into stupor and coma, are often similar or identical. In both they result from the same condition of consecutive cerebral hyperaemia.

In one of the cases which I have here cited, the period of excitement lasted from twenty-four to thirty-six hours, and terminated in mania and self-destruction before the supervention of the stages of coma. In a certain number of cases the occurrence of special symptoms, explicable in the light of cerebral localization, as in the one in which paralysis occurred upon the same side with the fracture of the skull, is conclusive evidence of contusion by contre-coup. In others, a clear history of reasonable sobriety, followed by the sudden supervention of symptoms of cerebral hyperaemia after some injury which had given no reason to suspect fracture or haemorrhage, may point by exclusion to a reasonably positive conclusion. In the many cases of apparent alcoholism with unknown history, close study of symptoms might afford, in the light of subsequent post-mortem observations, clues to some settled principles of differential diagnosis. If the primary stage be followed not by recovery but by inflammatory softening, or by abscess, then we are confronted by new conditions, and contusion has ceased to be in question. The following propositions, while not epitomizing the subject, I regard as of special importance:

1. Cerebral or phrenitic contusion may be either direct or by contre-coup, and may be either limited, diffuse, or attended by haemorrhage upon the surface of the brain.

2. The superficial haemorrhagic form may cause early death by compression.

3. The limited or the diffuse forms may cause early death through consecutive general hyperaemia.

4. The symptoms then resemble those of alcoholic intoxication for which it is usually mistaken.

5. The limited or the diffuse forms may cause death at a later period by the formation of abscess.

6. Contusion of the brain, with the possible exception of cranial fracture, is in general the most frequent cause of death in injuries of the head as a class.

These remarks have been intended to be illustrative and suggestive rather than exhaustive or even precise, and this is to be borne in mind in whatever consideration may be accorded them.

QUESTION III.

WHAT ARE THE INDICATIONS AND CONTRA-INDICATIONS OF OPERATIVE INTERFERENCE IN CASES OF INTRA-CRANIAL LESIONS?

QUESTION IV.

WHAT ARE THE BEST MODES OF OPERATING IN CASES OF INTRA-CRANIAL LESIONS?

QUESTION V.

WHAT ARE THE IMMEDIATE AND ALSO THE REMOTE RESULTS OF OPERATIVE TREATMENT IN CASES OF INTRA-CRANIAL LESIONS?

Discussed by JOHN B. ROBERTS, M. D., of Pennsylvania.

Dr. Mills said that one of his patients "got away from him." I think now it is time for many of these patients to "get away" from cerebral surgery. The impulse given to this department of surgery by the wonderful results of the last few years has been the means of saving many of those who have been subjected to traumatism; but I believe it has slain about as many among those who have been the subject of obscure lesions. It is well that the pendulum has swung the other way, and that we are selecting our cases with greater care and judgment. To-day we are refusing to operate upon cases which only a few short months ago would have been considered by many surgeons fit ones for operation. The results of cerebral operations in traumatic cases have been most brilliant. Some one here to-day has said that operations were sometimes deferred because the surgeon was afraid dis

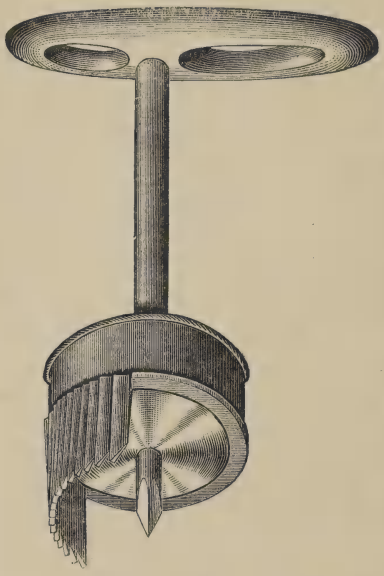
credit would be brought upon surgery. That is a most unfortunate fact. It is always extremely irritating to me to hear this statement. There should be nothing before us except the patient; and if surgery cannot take care of its own bad results, we should not care much for surgery.

Dr. Phelps spoke about the relation of fracture, contusion, and laceration of the brain. I recognise clinically no difference between concussion, contusion, and laceration; for all cases of concussion are cases of minute laceration or minute contusion.

In cases of foreign body, such as gun-shot wounds of the brain, there is no difference of opinion among us that operative interference should be prompt. An exploratory trephining is indicated here for the removal of the foreign body or for drainage, which after all is often the more important. Speaking of abscess leads me to say, that many cases of abscess of the brain after fracture are due to the fact that we have not kept the brain in an aseptic condition. The nose and pharynx, and similar channels leading to the seat of fracture, should be kept as aseptic as possible; and if we do this, recovery can often be secured without suppuration within the skull. Allusion has been made to abscess due to ear disease. This is interesting because it recalls the fact that nearly all abscesses not due to fracture are the result of purulent inflammation of the middle ear. Sometimes abscesses occur, even if there be no clinical history of ear disease; hence it is proper, in presumable abscess not following fracture, to open the mastoid process and search for the purulent focus before opening the skull. If that portion of bone shows suppuration, you may be almost certain that there is an abscess in some portion of the temporal lobe, and you must then trephine and search for the abscess in that part of the brain. I have learned much to-day concerning the technique of such operations; but one or two points seem to be worthy of a little further comment. In regard to the use of the battery in localising the convolutions when exposed, let me say that in two cases in which I have been present as

operator and consultant, information was sought for in this way under the skilful guidance of Dr. Mills, but the search proved futile. Dr. Putnam suggests that etherisation may be accountable for some of the negative results of such examinations, and the thought is a new one to me.

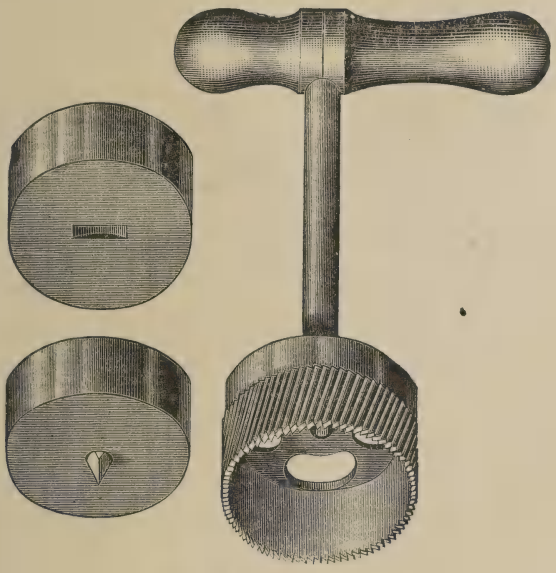
It has been stated here that if the trephine be too large, it becomes jammed, and that much time is expended in removing the disc of bone. These objections to the large trephine are by no means fanciful, but much of the difficulty often experienced is due to the dulness of the trephine. Every surgeon sees that his saw has a good edge, but few think of sharpening a trephine. The jamming of the trephine on account of the large circle becoming wedged where one portion of the skull is thicker than another, can be overcome by the use of the "segment trephine," which I described some years ago. This allows of one portion of the circle being readily cut to a greater depth than another. I have elsewhere described an "aseptic trephine," which has no hollow stem with its contained centre-pin, and therefore can be readily kept clean. The ordinary trephine is almost always dirty, and can only be made surgically clean by baking or steaming.



ROBERTS'S SEGMENT TREPHINE.

As to the results of operations, it seems that where skilfully performed, in selected cases, they have been very brilliant. Macewen, I think, records a case living eight years after the removal of a tumor; and another in which at least one year after removal of a tuberculous tumor, the patient

was alive. Such surgery fills us with honest pride and delight.



ROBERTS'S ASEPTIC TREPHINE.

The most difficult cases in this field of surgery are the epileptics Out of many cases referred to me for opinion as to operation, I have consented to it in only two, and in these the results were not satisfactory. Traumatic epilepsy is, of course, not included in the category of cases which are considered unsuitable for operation, since in a great majority of such cases the treatment is successful.

QUESTION II.

WHAT IS THE NATURE OF THE CHIEF INTRA-CRANIAL LESIONS, AND HOW CAN THEY BE DISCRIMINATED?

Discussed by FREDERIC S. DENNIS, M.D., of New York County.

The nature of the chief intra-cranial lesions is included in the following list:

1. Haemorrhage.
2. Pus.
3. Bone and foreign bodies.
4. Tumors.
5. Softening.
6. Embolism and thrombosis.
7. Epilepsy.
8. Intra-cranial pressure from fluid.

The question assigned to me for discussion does not include that of cerebral topography in reference to the parts of skull to be trephined, but restricts me to a consideration of the nature of the lesions and the manner in which they may be discriminated.

1. *Haemorrhage.*—The intra-cranial lesions due to haemorrhage have some characteristic features which serve to distinguish them from other cerebral lesions. The first prominent feature in haemorrhage is the time of the appearance of the symptoms after the traumatism. As a rule, there is a period of lucidity following injury before the onset of the symptoms. This period varies from a few minutes to several hours, the exact time depending upon the size of the vessel and the situation of the haemorrhage. If the vessel is small, the symptoms come on very gradually, but the onset is an appreciable period after the injury. If the vessel is large,

the symptoms come on in rapid succession, and they are more pronounced. After a clot has formed, the general symptoms in both sets of cases are substantially identical. The character of the symptoms depends entirely upon the situation of the haemorrhage. If the lesion is over the motor tract and the haemorrhage is slight, convulsions or muscular twitchings are present. If the haemorrhage is considerable and situated over the motor area, paralysis follows. The kind of paralysis, and its extent, depends upon the parts compressed by the blood. If the lesion is situated over the part of the brain from which the cranial nerves take their origin, there is present the altered function of these nerves, or paralysis, if the motor roots are involved. If the haemorrhage is situated in the middle or posterior fossae, there is not necessarily paralysis of motion as far as the extremities are concerned, but there are general nervous manifestations, or there is the disturbed movement of the heart from irritation of the pneumogastric, or a change in the respiratory, action.

I have observed in these cases insanity as a common symptom. This general condition, however, affords the surgeon no definite knowledge as to the precise seat of the haemorrhage. If the clot is situated in the cerebral substance, a certain amount of absorption will take place in many cases, accompanied by a general improvement in the symptoms, a circumstance which indicates the nature of the lesion. If the haemorrhage is situated in the lateral ventricle,—without the history of an injury, or the symptoms due to increased arterial pressure, as occurs in Bright's disease,—there is no difference in the symptoms under these conditions from ordinary apoplexy. In one case seen last spring I was enabled to remove a clot from the lateral ventricle by trephining the skull. If the haemorrhage is subdural or epidural, the clot will not absorb; and surgical interference is called for in order to remove the symptoms. Improvement can be expected, however, in slight haemorrhages into the cerebral substance.

2. *Pus.*—An intra-cranial lesion associated with pus has,

like haemorrhage, some characteristic features which serve to distinguish it from other conditions causing cerebral compression. A traumatism usually precedes the formation of pus, but this is not an essential condition, because these cases occur with an apparently idiopathic origin. The point to consider, in a lesion associated with suppuration, is the interval of time between the injury and the onset of the symptoms. This period is very much longer than in the case of haemorrhage. The difference in time may be estimated by days or weeks rather than measured by minutes or hours. In the idiopathic variety of purulent lesion there is nothing to distinguish it from tumor except that the onset of the cerebral symptoms is more rapid in contrast with those accompanying a neoplasm. The special exception to the law that pus-formation is accompanied by elevation of temperature is found in cerebral abscess. The temperature may be even subnormal, and this condition is in itself a suspicious symptom. I have found that subnormal temperature in abscess affecting the frontal lobe is quite characteristic. The characteristic features in intra-cranial lesions with suppuration are found in the time of the onset of the symptoms, the subnormal temperature, and the mental hebetude.

3. *Bone and foreign bodies.*—The distinguishing feature of intra-cranial lesions due to injury of the bone and to foreign bodies is, the immediate appearance of the symptoms following an injury. The lesions due to these agencies are found in depressed fracture of the skull, or as a result of a gunshot injury, etc., and, therefore, do not properly belong to this particular field of discussion.

4. *Tumors.*—This form of compression is found in almost every part of the brain. The tumor may grow rapidly for a neoplasm, but, at the same time, slowly, in contrast with haemorrhagic or purulent lesions. The gradual onset of the symptoms attacking one nerve and then another, the history of specific disease which gives rise to gumma, or the absence of syphilis pointing to sarcoma, carcinoma, or glioma, are points to be taken into consideration.

Tumors of the *cerebrum* present a group of symptoms quite characteristic. If the growth is situated in the motor cortical area so as to cause complete pressure, the presence of cerebral hemiplegia is diagnostic. If the growth is small and distinctly circumscribed, only a group of muscles may be found affected, such as a monobrachial paralysis, a crural monoplegia, or facial paralysis. If at any time the circumscribed growth should rapidly increase in size, a monoplegia might quickly be developed into a complete hemiplegia. I have seen such a phenomenon arise in case of haemorrhage where at first the face alone was involved, and in a few hours the arm and leg were affected. This same change might occur in tumor, but the symptoms would appear gradually. These symptoms are sometimes preceded by spasms of certain muscles. In fact, a very small peripheral haemorrhage, or a small tumor situated in the periphery, may cause spasm, and that without paralysis, until a little while after the onset of the trouble. It is to be remembered that different forms of paralysis are more valuable diagnostic signs than different forms of localised convulsions. In cases of cerebral tumors situated in the cortical centres for speech, the symptoms of paralysis of the extremities are absent, but in place of that symptom there is present a disturbance of speech. Aphasia, either of the amnesic or ataxic variety, will be found present; or even sensory aphasia.

Tumors of the *cerebellum* also present a group of symptoms equally characteristic. Among the list may be found projectile vomiting, disturbances of coördination, as cerebellar ataxia, irregularity of the heart movement, atrophy of the optic nerves (or choked disc), loss of control over the bladder and rectum, headache, and dizziness. These symptoms are present to a greater or less degree in cerebellar tumors, and they are in marked contrast to the chain of symptoms just described as indicating cerebral lesions. In all of these cases the most important thing to consider from a diagnostic standpoint is not so much what symptoms actually are present, as how those symptoms appeared, and whether they are second-

ary to a primary or initial lesion. The application of the various tests known to neurologists enables the surgeon to localise accurately the situation of the growth. The presence of iridoplegia, the differentiation between an Argyll-Robertson pupil and the condition of the pupil due to syphilis, to pressure effects, or to other causes, must be observed.

Tumors of the *pons* associated with crossed paralysis if the lesion is below the decussation of the facial nerve, but the face is completely paralysed if at the level of the decussation of the facial nerve. We may also have general muscular twitchings, contraction of the pupils, sugar in the urine, crossed hemianaesthesia, and dysarthria or anarthria. In the examination of the impairment of function of cranial nerves in tumors situated in this part of the brain, the highest importance must be attached to paralysis of the abducens, as indicating the seat of the lesion.

Tumors of the *medulla oblongata* are associated with disturbances in respiration and heart-action. To these symptoms must be added impaired movement of the tongue, aphonia, dysphagia, glycosuria, and sometimes hemiplegia, or paraplegia. The sensibility may be diminished on one side or entirely lost, and increased upon the other side. The same may be said as regards the temperature sense.

It is thus evident that a study of the symptoms and signs of intra-cranial tumors, and the manner in which they are to be discriminated from other lesions, forms a subject for profound investigation. The minute study of every sign in connection with the growth of an intra-cranial neoplasm is full of interest, and offers a field for observation that fascinates the surgeon; and it is to be regretted that within the limits of a paper of this character the opportunity is not present to pursue the subject to a greater extent. The paramount importance of establishing a correct diagnosis before any operation should be attempted is of course obvious to the most casual observer.

The intra-cranial lesions associated with the presence of

cerebral softening is a subject as yet imperfectly understood. Softening is not entirely dependent upon the obstruction of a blood vessel entering the affected area. It may occur as a local lesion due to traumatism primarily, and to inflammatory changes secondarily. It matters little how the softening occurs, a study of its characteristics—and its discrimination from other lesions—alone concerns us in this discussion. Circumscribed areas of softening resemble the changes due to apoplexy, although the cause which gave rise to the softening may be different. I have seen five cases of cerebral softening, in all of which I was enabled to secure the pathological specimens, and these are of very great interest. They all occurred after traumatism of the head, but there was no evidence in any of them that the softening was due to sepsis. The autopsy in each case was conducted by an experienced pathologist. The situation of the softened areas at a point somewhat distant from the original wound, the changes, *i. e.*, haemorrhage and softening, and the perfect aseptic and healed condition of the external wounds, indicate that these cases were not of septic origin through the wound, but that they were examples of changes identical with those which are found in cases of cerebral apoplexy.

The cerebral softening appears to be due to a molecular disintegration, or laceration of brain tissue from traumatism. This disturbance of the brain tissue produces a metamorphosis, with eventual liquefaction. The external surface of the dura mater seems to possess power to prevent the entrance of septic micro-organisms into the cerebral substance, while the internal surface, owing to its proximity to the arachnoid space, is exceedingly delicate, and affected by the slightest amount of septic material. Experimental work in this direction indicates that such points of softening may have their origin in traumatism, and are not necessarily due to sepsis.

To convince myself further of the accuracy of this conclusion, I trephined the skull of a dog and planted septic micrococci upon the external surface of the dura mater. Though the germs were septic, they failed to develop cerebral abscess

through the dura, or even to produce a septic meningitis. While such an experiment would be considered insufficient evidence upon which to base any positive conclusions, yet it is additional evidence in favour of the non-septic origin of these cases of cerebral softenings.

A microscopical examination of the fluid in these cases of liquefaction may, perhaps, reveal the presence of some germ, like the bacillus tuberculosis, to account for the softening. At all events, an explanation of this kind seems very probable in the light of modern scientific study. It serves to show that an operation can be performed upon the skull, and the patient recover entirely from the effects of the trephining; yet the patient may die from causes entirely disconnected from those conditions which led to the operation. This cause of death by cerebral softening is as yet beyond the control of the surgeon, and to a removal of this cause of death future scientific surgery must address itself.

Embolus and thrombosis.—These conditions arise under different circumstances. In the former there is usually found a history of rheumatism, or cardiac disease, or there is some arterial degeneration, and the cerebral symptoms appear at once. The embolus may be found in almost any part of the brain, but usually the left middle cerebral artery is the seat of the lesion. The precise situation of softening following an embolus is usually found in the corpus striatum, lenticular nucleus, optic thalamus, and caudate nucleus. The hemiplegia, and other symptoms, are accordingly well marked, and this condition must be differentiated from the cerebral haemorrhage (as it occurs in apoplexy), and from conditions produced by traumatism which give rise to the same nervous manifestations.

In *thrombosis* the characteristic features which serve to distinguish it from embolism are the presence of conditions about the head which would give rise to its development. Among these conditions may be mentioned otitis-media, naso-pharyngeal catarrh, lupoid ulcers, diphtheritic exudation, necrosis of one of the cranial bones, etc., in fact, any altered

condition from the normal standard of the tissues, and in particular when they have undergone necrosis. I once scraped a lupus situated upon the cheek, and in a few days cerebral thrombosis followed, and also thrombosis of the lateral sinus, with death. These features serve to show the development of a thrombosis in cerebral disease, and open a way for operative interference.

The symptoms in thrombosis do not appear as suddenly as in embolism, and usually thrombosis occurs in people of advanced years, unless from septic cause. Calcification of the arteries indicates thrombosis. These cases can usually be differentiated, and surgical measures must be resorted to in order to save life. Up to the present time very little has been accomplished in the way of relief in this special lesion, and it is only a question of the application of the rules and principles of antiseptic surgery; for in those cases many have hitherto perished from septic causes.

The intra-cranial lesions associated with epilepsy, for which surgical interference is indicated, are chiefly restricted to traumatic epilepsy. I have operated on several well pronounced cases of the cortical epilepsy of Hughlings Jackson, with most satisfactory results. In the cases where the cause is idiopathic, the results have not been so successful. The lesion is usually an irritative, not a destructive, one. Often adhesion of the dura mater with implication of nerves will cause the epilepsy.

Intra-cranial lesions due to pressure of fluids include cases of hydrocephalus, as well as the pressure found in cases of mania and traumatism. In hydrocephalus due to tubercular meningitis the diagnosis can be made from other conditions, aside from the collection of fluid in the ventricles. Pressure is likewise produced by cysts, which in themselves form a distinct cerebral lesion. In many cases of insanity, the result of traumatism, the intra-cranial lesion is an irritative, and not a destructive, one. In other cases the disturbing cause is ventricular fluid. This has been found in those cases which have been subjected to operation.

In a most valuable paper upon this subject, Dr. J. J. Garmany has pointed out among the symptoms indicating insanity as a result of irritative lesions due to traumatism,—(1) increased temperature of scalp over site of injury; (2) increased vascularity of part; (3) adhesion of dura mater to bone; (4) accumulation of serum in a cyst; (5) deficiency of bone; (6) dura reflexes exaggerated at beginning; (7) dura reflexes lost subsequently; (8) monospasms.

In these cases of insanity, including one hundred and seventy-five cases which were published between the periods of 1790 to 1887, there was found, scarcely without an exception, the history of a compound fracture. The interesting clinical fact is noted that the injury was not necessarily a depressed fracture. This observation points clearly to the fact that every fracture of a compound nature should be subjected to examination, and the wound at the seat of injury be made aseptic.

Another important clinical observation was recorded, viz., that the situation of the fracture has a bearing upon the question of insanity. Fractures of the frontal or parietal regions, followed by epilepsy, resulted in insanity in over fifty per cent. of the cases. It is evident, therefore, that certain fractures of the skull, followed by adhesions of the dura mater and serous collections, are most important intra-cranial lesions, and that these injuries have well pronounced diagnostic symptoms which are quite characteristic.

In acute hydrocephalus the pressure of the contained fluid within the ventricular cavity is productive of serious symptoms, and in certain cases, as has been pointed out in a most valuable paper by Keen, the intra-cranial pressure can be relieved by tapping the ventricle and withdrawing the fluid. The effusion in these cases cannot be strictly designated a lesion, but the pressure effects caused by the fluid give rise to a group of symptoms which correspond to those produced by a neoplasm, with, of course, certain modifications. The fluid acts as a disturbing agent, and for this reason its presence is included among the list of causes that produce a lesion

calling for surgical interference. At the present time a recognition of this condition is pertinent, and the presence of the fluid in the ventricle must not be overlooked as a cause of intra-cranial disturbance with distinctive features which are of such a character as to enable the surgeon to distinguish it from other conditions.

QUESTION I.

WHAT ARE THE PRESENT MEANS OF LOCALISING INTRA-CRANIAL LESIONS?

Discussed by Joseph D. Bryant, M. D., of New York County.

The term "lesion" will be limited, for the purposes of this paper, to abscess, haemorrhage, depressed bone, and tumors of intra-cranial origin; and only one of each class will be cited from my own personal experience at this time. The present means of localising these lesions can be classified for convenience as topographical, physiological, and instrumental.

The topographical means relate to the connection existing between certain established landmarks and lines of the cranium that are found to bear a decided relationship to superficial parts of the encephalon, many of which parts have had definite functions assigned to them already.

The physiological means relate to the establishment of the site of a pathological process by studying the deviations from the normal functions of a part, and as the result of local disease or injury.

The instrumental means are largely subsidiary, and their application is often more of an experimental than of a practical character,—as, the thermometer does not present reliable evidence of the location of a cerebral tumor; and while the galvanic current may aid in the location of a motor centre, still its use is quite superfluous if evidence of disease be already appreciable to the unaided senses.

It is not my intention at this time to suggest any modification of the present methods employed for the purposes of cerebral localisation. It appears to me that there are quite a sufficient number already for the purposes of localising the

established centres; and as modifications, the result of practical experience, will suggest themselves, it is unwise and pedantic, I think, to handicap advancement in this field of inquiry with theoretical suggestions alone. Instead of this, I shall call your attention as briefly as possible to the results of the methods employed by me for the purpose of locating the seat of the lesions in only a few cases that have come under my personal observation.

Case I (the history of which is given somewhat in detail, even at the risk of causing fatigue to the hearer) is one of *compound depressed fracture of the skull, situated at the upper border of the left parietal bone, over the upper extremity of the fissure of Rolando.*

In this instance the upper end of the fissure of Rolando was located at one half inch behind a point half way between the root of the nose—the gabella—and the external occipital protuberance—the inion.

Prof. Thane, of the University College of London, first adopted this plan of locating the upper extremity of this important fissure. If a line be now drawn from this point downward and forward across the parietal bone at an angle of about 67° to the sagittal suture, the upper two thirds of this line will correspond substantially to the same fractional portion of the fissure of Rolando—in adults. In this case, however, the lower end of the fissure was located after the manner of Lucas-Championnière, which consists in measuring directly backward from the external angular process seven centimeters, thence directly upward, at a right angle with the line of the preceding measurement, three centimeters, to which point the lower end of the fissure of Rolando corresponds. The location of the upper and the lower ends having been established, they are then connected with each other by a line having a slightly forward convexity at the upper third.

P. C., aged 56 years, received the injury June 21, 1888. He came under my observation several days afterward.

The history of the case at this time showed that the patient had been trephined, the depressed bone raised, and that a tear of the dura mater at the seat of fracture had been united with two horse-hair sutures. The brain was found to have been slightly lacerated at the seat of the fracture. All of the manipulations and operations had been made with antiseptic precautions. The dressings, too, were of the approved antiseptic character. The operation was performed on June 21, and the patient did well in all respects until June 26; then he complained of numbness of the fingers of the right upper extremity, and slight difficulty of the movements of this extremity. June 27, motion and sensation of the lower extremity of the right side also diminished. About July 1, I saw the

patient for the first time. From this time until July 10, the loss of sensation and motion of the right side increased but little, if at all. The patient could sit readily, and could walk around the room with some effort on his part. In fact, he expressed the opinion that the ability to move improved slightly from day to day, a belief that was concurred in by the physician in attendance. During this time the patient suffered from no pain, and the pulse, temperature, and respiration were substantially normal in all respects.

On July 11, motion and sensation not having improved during the last few days, it was determined to explore the wound, with the view of ascertaining its true condition so far as possible, and also to aspirate the brain tissue at this situation for the presence of pus, which, it had been suspected, might have existed for some days. The wound had not completely healed as yet, but discharged small quantities of pus, as noted on the dressings that had been freshly applied once in every two or three days since the first operation.

On July 11, the old wound was opened under antiseptic precautions, and the following facts were ascertained:

(1) The dura mater had apparently disappeared from the central portion of the injury. The sloughing shreds of the portions of this membrane remaining at its borders suggested not only the absence of the membrane in other situations of the wound, but also the method of its disappearance. The remaining portions were pale, fibrous, inoffensive, and dead. They were removed with scissors.

(2) The deeper membranes were covered with granulations of a firm consistency, which were bathed in a small amount of apparently healthy pus.

(3) The cerebral pulsation was slight indeed at the central portion of the wound, but better defined at its outer border. Pressure at the centre met little opposition,—the membranes seemed to cover a small cavity.

(4) At the centre was found a small opening leading through the membranes into a small cavity directly beneath them. From this opening pus in slight amount escaped. Aspiration in several directions into the brain structure failed to indicate the presence of pus.

(5) The calvarium around the border of the wound was softened to a limited extent. The cavity in the brain was washed out with an antiseptic solution, drained with horse-hair, and the wound dressed antiseptically.

July 14. Wound re-dressed; nothing unusual noticed. No change of the degree of the paralysis of the right side.

July 24. Patient says that sensation has improved slightly during the last few days: attending physician thinks likewise. The degree of motion is unimproved in the extremities.

July 25. Facial paralysis of the right side, beginning at the angle of the mouth especially.

July 26. Hesitation of speech, apparently becoming aphasic.

From this date until August 14 the symptoms of loss of power slowly increased, but the pulse, temperature, and respirations presented nothing suggestive of brain disease. Between the 12th and the 14th of August the patient became completely aphasic, and had complete hemiplegia of the right side of the body. A final operation was planned at once, with the belief that the patient was suffering from the effects of a cerebral abscess, or from advancing cerebral disintegration in the region of the ascending frontal convolution.

Operation.—The scalp was shaved, and thoroughly disinfected, on the left and nearly all of the right side of the head. A line was then drawn directly backward $2\frac{4}{5}$[1] inches from the posterior border of the malar process of the frontal bone on the left side of the skull. A second line was then drawn $1\frac{1}{5}$[1] inches in length, directly upward from the posterior extremity of the preceding line, and at a right angle to it. From the upper extremity of the last line, another was drawn obliquely upward and backward to the point on the median line of the skull corresponding to the location of the upper end of the fissure of Rolando, which point had been previously determined by measurement from the naso-frontal suture to the external occipital protuberance. An ordinary trephine was then applied to the skull immediately in front of the centre of the oblique line.

The removal of the button of bone showed the following facts:

(1) The dura mater, unchanged in character, bulged into the opening. Pulsation of the bulging portion was scarcely discernible, although the patient's pulse was good at this time.

(2) The membranes were incised and turned aside, exposing the brain substance to view. The brain substance bulged, was intact, convolutions flattened, and pulsation faintly perceptible on palpation. Aspiration of the brain at this situation with a fair sized needle, made in various directions, did not reveal the presence of pus or of softened brain matter.

A free incision was then made directly downward for about one inch into the brain substance with a narrow bladed knife. Before the removal of the knife, a grooved director was carried carefully along the course of the incision by the side of the blade to the depth of an inch. Softened brain matter and a purulent looking fluid in small amount then came to the surface of the brain along the groove of the director. The bony opening was then enlarged with the rongeur, and the opening in the brain was increased to three fourths of an inch in length downward, parallel with the fissure of Rolando. A considerable amount of pus and disintegrated brain matter escaped through the incision. The little finger was then passed carefully through the incision into the brain for a

[1] Substantially the lines of Lucas-Championnière.

distance of about one third of an inch. After this the finger met with no resistance until it had been introduced at least one inch farther, then it came in contact with that which appeared to be the posterior wall of an abscess cavity. A blunt probe was then carried through the opening in the membranes at the seat of the original injury (upper end of fissure of Rolando) toward the end of finger, which it readily and quickly touched. The upper opening was then enlarged with a blunt pointed bistoury, and the little finger of the remaining hand was passed toward the one already introduced. These and subsequent digital examinations revealed the existence of a cavity lying beneath and involving the ascending frontal and parietal convolutions, even extending down to a point indicating the situation of the island of Reil. This cavity had soft walls, and still contained a considerable amount of diffluent brain and purulent matter. The cavity was washed carefully with a weak solution of carbolic acid, and drained through and through with carbolised horse-hair, protected with an antiseptic dressing loosely applied. The patient died four days afterward unrelieved. During this time no change for the better occurred in the symptoms previously narrated. The temperature two days before death arose to 102½° F., then fell to normal within thirty-six hours, where it remained till death. Prior to this rise it had varied only half a degree above or below the normal standard. The pulse varied between 70 and 98 per minute up to within three days of death, during which time it ranged from 108 to 122 per minute.

The post-mortem examination revealed a sinus-like cavity, corresponding to the entire length of the ascending frontal and parietal convolutions, extending into the brain to the roof of the left lateral ventricle, but not communicating with it. This cavity was covered by the grey brain matter its entire length, and its walls were softened; the surrounding brain structure was quite firm in the immediate vicinity of the softened lining of the cavity.

This case may be considered as an example of cerebral disintegration, attended with mild inflammatory changes, and was caused, no doubt, by laceration of the brain at the seat of the initial lesion. Its course down the ascending convolution is aptly demonstrated by the serial appearance of the symptoms that indicate the localisation of disease in the seats of the special functions that exist in these convolutions.

This case teaches at least two important facts:

(1) That a small and presumptively circumscribed injury of the brain substance at the upper end of the fissure of Rolando may incite an advancing cerebral disintegration, sufficient to involve the motor centres associated with this fissure, without causing notable constitutional symptoms.

(2) That aspiration of the brain as a means of diagnosticating the existence or the situation of an abscess is of uncertain utility, even when

a fair sized needle is used; and that the employment of the ordinary hypodermic appliances for this purpose is entirely unreliable and misleading.

Case II. *Obscure fracture of the skull, with extensive epidural clot above the motor tract; exploration; death.* During the summer of 1889 a patient was admitted to St. Vincent's hospital who had fallen and injured the right side of the head, causing a small scalp wound at the posterior parietal region. On admission, the patient was completely hemiplegic and unconscious. An examination of the skull at the seat of the wound disclosed no fracture of the bone. However, it was deemed advisable to trephine in the line of the motor area, which was accordingly done, over the middle third of the fissure of Rolando. This site was selected, not only because the motor centres at this situation were involved, but also because it permitted most readily the examination of the involved contiguous motor centres. In this case the motor area was located as in the preceding instance. The removal of a good sized button of bone revealed an extensive collection of coagulated blood above the dura mater, compressing the entire motor area along with the contiguous portions of the frontal, parietal, and temporo-sphenoidal lobes. The clot also extended to the base of the brain as far as the finger could reach.

The removal of the blood exercised no favourable influence on the symptoms, since the compressed brain did not return to its former position in an appreciable degree. The existence of a cranial fissure was also disclosed. It began about two inches in front of the seat of the scalp wound, and extended forward directly across the motor area, thence abruptly downward and slightly forward, to be lost at the base of the skull in the middle fossa. Obviously the grooves in the parietal bone for the branches of the middle meningeal artery were involved in the fissure; and, too, the associated branches of this vessel were torn across at the same situation, thereby causing the large clot thus described. The operation afforded no relief to the patient; he died a few hours thereafter, without any symptomatic amelioration. However, this case is not sterile of important lessons. (1) It illustrates the fact that an extensive fissure can begin at some distance from the seat of the violence causing it, and that its existence may remain unrecognised without an extended exploration; (2) that extensive and fatal vascular complications may be caused at a considerable distance from the seat of an apparently innocent injury of the scalp or skull; (3) that when paralysis, involving the motor areas of the brain, follows an apparently trivial injury of the head, an operation at the seat of the areas is indicated for the purpose of exploration alone; (4) that the removal of a compressed brain clot is not necessarily followed by improvement of the symptoms of compression, and if the brain does not soon resume the normal relations with the skull, death will ensue as the result.

Case III. *Compound depressed fracture of the skull, with aphasia.* John F., age 37, was admitted to St. Vincent's hospital July 13, 1890. On the day of admission he was struck on the head with a Rhein-wine bottle by a burly negro. He was knocked down and stunned temporarily by the blow, but he soon arose, and, although he had recognised the person who committed the assault, still he was unable to speak his name. In fact, he was unable to inform the bystanders of his own name. This dilemma was met, however, by his writing his own as well as the name of his assailant on a piece of paper. He was brought to the hospital in the ambulance at once. When admitted he could not recall his own name nor the names of many common things. An examination of the injury disclosed a small circumscribed compound depressed fracture of the skull, located near the lower end of the fissure of Rolando. On the following day the depressed bone was elevated, and thereafter all aphasic symptoms disappeared. This case is instructive, since it impressed the fact that a circumscribed compression, due to traumatic influence, may limit its effects to one motor centre only.

A short time since my attention was called by Dr. Stewart, house surgeon of Bellevue hospital, to a recent compound depressed fracture located near the arm centre, but without a symptom or any suggestion of paralysis of any portion of the body. By my direction the bone was elevated by Dr. Stewart, and without difficulty. At the end of thirty-six hours well marked paresis of the arm followed, which, however, disappeared entirely forty-eight hours thereafter, and the patient made a rapid and complete recovery.

An occurrence of this kind in a similar case in private practice, especially if the operator has not an established reputation for skill, would be likely to cause unfavourable comment, and might unjustly do much to injure his professional prospects. In my judgment, this paretic manifestation was caused by a transient oedema of the arm centre in some manner dependent on the injury itself, but it nowise occurred as the direct result of the operation.

I have now cited an example of each of the lesions mentioned at the opening of the paper, except that of tumor. My experience in the matter of cerebral tumor is limited to one case alone, a case on which I operated but a short time since, at the request of Dr. Wolff, of Hartford, Conn., in whose practice it occurred.

The remaining question of the series to which I am to respond is,—

Question V. "*What are the immediate and also the remote results of operative treatment in cases of intra-cranial lesions?*"

This question is purely one of record, and, in order to ascertain the amount of recorded experience bearing on it, I furnished two of my most indefatigable college assistants, Dr. Glover C. Arnold and Dr. John F. Erdmann, with certain interrogatories, and requested that they examine the literature of this question from the stand-point of these several queries,—*The literary source*, the age, sex, and occupation of the patient; *causation*, and special details of; *situation*, and extent of; *symptoms*, local and general, special of each; *treatment*, common and special; *later symptomatic developments*, usual and unusual; *results*, as to the time of; *recovery*, degree and time of; sequels; remarks. They have not at this writing been able to make a systematic report of their investigations.

QUESTION V.

WHAT ARE THE IMMEDIATE, AND ALSO THE REMOTE, RESULTS OF OPERATIVE TREATMENT IN CASES OF INTRA-CRANIAL LESIONS?

Discussed by THOMAS H. MANLEY, M. D., of New York County.

In order to answer the above question with any regard for method or classification, it is necessary to divide intra-cranial lesions into two classes,—viz., those of an extrinsic and those of an intrinsic origin; those arising from violence or mechanical influences, and those resulting from pathological changes within the skull. In the present instance, my observations will be mainly confined to lesions of a traumatic character, although what is said concerning the changes which arise when those are treated by active surgical intervention will practically apply, with slight modification, to the treatment of intra-cranial formations of a constitutional origin.

Intra-cranial lesions attributable to traumatism are commonly of a compound nature, being associated with contusion, laceration, or puncture of the scalp and the underlying textures, with fracture or depression of the osseous plates of the skull; hence we might with propriety designate them cranio-cephalic lesions.

Conditions following cranial injuries, in which the patients survive, have reference to,—

1. Shock.
2. Compression or laceration of brain substance.
3. Haemorrhage.
4. Inflammation.
5. The formation of pus.
6. Localised brain softening.

The utility or justifiableness of operative interference depends on a multitude of circumstances which demand a most careful consideration. Nothing will be done while the patient is in a state of collapse either from the violence of the blow or from cerebral haemorrhage.

It is considered at the present time proper to open the abdominal cavity and seek out a leaking vessel, even though the vital powers are at a low ebb; but I am not aware, however, that a similar line of conduct has been recommended when the blood comes through parts beneath the dura mater, and assuming its practicability, yet, while the patient lies in a state of profound coma, the localisation of the bleeding vessel will usually be impossible.

Compression or laceration of brain substance.—Traumatic compression of brain substance depends, exclusive of haemorrhage, on fractured, displaced, or depressed bone, serous accumulations, or abscess. As we may have grave symptoms in head injuries without the skull being implicated, so, *vice versa*, we not infrequently witness the bone shattered into many fragments, driven in and through the meninges or into the brain, with no symptom present indicative of cerebral disturbance. This is often conspicuously the case in young children, though many cases are recorded in military history of similar phenomena in the adult. Baron Larrey cites two cases demonstrative of the singular tolerance of the brain for localised pressure. One case which he mentions was a Russian officer, struck over the right eye by a canister ball weighing seven ounces, which lodged in the anterior cerebral hemisphere. The soldier walked to the field hospital without manifesting any serious symptom. The other case was a cannonier shot in the forehead, the ball perforating the os frontis, taking a backward direction, and lodging in the left side of the brain opposite the lambdoidal suture. Although it remained three days undisturbed before Baron Larrey removed it, no cerebral symptoms were present.[1]

In a general way it may be said that fractured or depressed

[1] Mem. de Chirurg. Militaire, T. III, p. 138.

bone of the skull can, when necessary, be expeditiously dealt with by the trephine. There are, however, very many occasions when the application of the trephine is attended with danger and difficulty. When the fragment is of a sharp conical outline and its apex is deeply imbedded in cerebral substance, or when one must perforate on the extreme margin of a radiating fracture, a large amount of bone plate must come away before we can clear the cavity.

If the fracture is immediately over one of the sinuses, and in trephining or displacing the bone one of the sinus walls is opened, our patient is in great danger.

I have had a case in which, when trephining for a depressed fracture close to the torcular Herophili, after removing a disc and slowly elevating some depressed fragments, blood suddenly gushed from the opening; the haemorrhage could not be controlled, and almost at once our patient was dead. The recent assertions about reimplantation of bone, I believe, have no substantial foundation. It is absurd to speak of reimplanting shattered fragments of cranial bones, or those bits nipped away with the rongeur. Of all the regions of the osseous system, the cranial is the one which is wholly destitute of the power to regenerate bone. Hence, when a sterilised piece of skull bone takes on adhesions with adjacent parts in an adult, I am confident that its bond of union is not osseous; further, as drainage is necessary, with the rent plugged this will be impeded. Since, then, reimplantation of bone here is impracticable, after the use of the trephine we will have a permanent loss of substance.

The force necessary to crush in the bone causes a contusion of the soft parts in varying degrees; hence not infrequently, after the bone is removed, the margins of the wound in the scalp ulcerate and retract in such a manner as to leave a part of the brain unsupported and liable to develop a hernia cerebri, which unfortunately we only too often can neither relieve nor cure. Or, what is nearly as serious, it may leave a porthole in the cranium; the brain, having yielded to atmospheric pressure or other causes, sinks below the level

of the dura mater, and remains exposed, the integuments closing over the annular margin of bone, but stubbornly refusing to expand over the brain itself. Abundant and dangerous haemorrhage may arise as the saw tears through the diploë, or when the larger meningeal vessels are lacerated. It is needless to say, that the dura mater is always exposed to laceration when the large trephine is employed.

Haemorrhage.—The efficient control of haemorrhage constitutes one of the greatest difficulties in brain surgery. Although, except the longitudinal sinus, all the great arterial trunks lie at the base of the skull and its lower lateral margins, yet the whole cerebral mass is everywhere extremely vascular. In the vast majority of cases where I have performed immediate trephining, which has been followed by death, I am confident that the loss of blood was a leading factor, and from what I can learn from reports of trephining operations for pathological conditions within the brain, when death has promptly followed, haemorrhage has been the cause. There is no disguising the fact. Indeed, so great was the fear on the part of a majority of the past generation of surgeons in operations involving the brain, that they advised interference only as a *dernier ressort.* The most valuable of all the haemostatics has almost no application within the cranium. The cerebrum is a pulpy, non-resistant mass. Pressure implies resistance. Now how can effective pressure be brought to bear on a substance of little greater resistance than lard? It cannot be done. Even if it could, how will one manipulate in search for a bleeding vessel through a portal which will not admit two fingers? Certainly, if the vessels course along the firm walls of the calvaria, pressure will be effective; or, if we see the mouth of the bleeding vessel, we can grasp and secure it, but not otherwise. As capillary and venous blood flows languidly, and exposure to air coagulates it readily, it will cease of itself; but as arterial blood is sent through its trunks with great energy, it demands positive pressure to control it. While the loss of blood into the brain, as into other organs of the body, will destroy life,

yet, reasoning from analogy, I can see no reason why a haematoma of moderate volume, either at the periphery or into the cerebral mass, should be followed by serious consequences, as it is well known that blood will be absorbed as rapidly here as elsewhere. Accordingly, I am convinced from experience that in those cases of cranial lesions attended with intracranial haemorrhage, unless there be some clear and well defined indication, trephining for displacement of the clot is not only unnecessary, but is a vicious, illogical, and dangerous line of practice. A man came into my service at the Harlem hospital two years ago, who had fallen into a bulkhead. The scalp wound which he sustained bled freely. After being in the hospital ten days waiting for the wound to heal, he had a convulsion and lost consciousness. On a careful examination of the skull, I found a linear fracture at the centre of parieto-temporal articulation. There was some slight separation, but no depression of the edges, and I decided to trephine. After the trephine entered the cranial cavity, I saw that it came down directly on a blood clot of large size.

Enlarging the opening with the rongeur, I displaced the clot which lay between the inner plate of the skull and the dura mater. It extended down and into the middle fossa, and had a firm, compact feel. Now, with my index finger in the clot cavity, I carefully dislodged what débris of coagulated blood remained, and directing the nozzle of the irrigating tube with the other hand, I was startled to find the irrigating fluid coming up of a dark crimson colour and in greater quantities than I was injecting. I quickly sponged out the cavity left by the clot, and packed it as firmly as I regarded consistent with safety, but with no avail, as the blood filtered through the compressed gauze and sponge. We had displaced the fibrinous plug which nature had elaborated. As the source of the haemorrhage was so deep—altogether beyond our reach—nothing more could be done, and we lost our patient. If this man had been left undisturbed, he should have recovered, though possibly the clot might have excited fatal inflammation if it were not absorbed.

On post-mortem examination it was found that the fracture extended into the petrous portion of the temporal bone, backward, and lacerated the external wall of the lateral sinus: from thence the haemorrhage had come. In order that a correct estimate be attained of the almost insurmountable obstacles in the way, and of the unexpected difficulties which may arise when we essay brain surgery, this element of haemorrhage must be particularly considered.

Inflammation.—Since the advent of antiseptics, combined with cleanliness, the danger of inflammation arising as a sequel to the use of the trephine is largely eliminated, though not wholly banished. It should be borne in mind that there are interposed very important structures before the brain is reached, and that an extensive inflammation of any one of them is quickly fatal. And while we may now, with almost a certainty, prevent septic infection, still mechanical irritation or constitutional predisposition often favours inflammatory processes in the integumentary, osseous, or membranous envelopes of the encephalon, which we can neither entirely prevent nor subdue.

Erysipelas capitis, when of traumatic origin, is always a most serious complication. Diffused osteitis, when once well established, is inevitably fatal. Meningitis, the most dreaded of all, is quite frequent. Spreading towards the base, involving the nerve-roots or extending into the spinal canal, it soon manifests its relentless progress by convulsions, paralysis, and coma. By no possible precaution known to science can we always prevent the onset of inflammatory action when an extensive operation is undertaken on those parts, which are at once the most compact and the most delicate in the human body.

I have found trephining the skull, division of the membranes, irrigation and drainage, as a treatment for meningitis, to be totally useless. Within the past year I have trephined the heads of four children, varying in age from four to ten years, who had general meningitis of a traumatic origin. Two had been sent into the hospital by physicians who were

evidently apostles of the theory of cerebral localisation, for they had located the lesions with singular precision and had diagnosticated cerebral abscess. I trephined over the indicated areas, penetrating deeply into the brain substance, and found nothing. Neither was anything revealed at the post-mortem examination the following day, when the cranial contents were critically scrutinised, except a general meningitis in both. Neither of the other two children survived forty-eight hours. The loss of blood, together with the lethal action of the anaesthetic, materially shortened their lives, and, I think, diminished their chances of recovery.

In this connection, I beg to say, in parenthesis, that I have found meningitis very prone to develop after cranial injuries in young children in spite of all antiseptic precautions; but since I have discarded them in those cases, and kept the head well covered with ice or refrigerating lotions, we have had very much less of it. Encephalitis, resulting from the probing, bruising, and fingering inseparably connected with explorations, is a most untoward event. It gives rise to fungous growths, which prevent union of the scalp, and which will reappear quickly after excision; and, unless it is reduced by a subsidence of the inflammatory action or absorption, will in the end cause death.

The formation of pus.—For the same reason that inflammation is of less frequent occurrence when the trephine is used, we see less frequently a traumatic abscess. I have never seen it after the skull is drilled, but I can conceive of its arising in tubercular subjects, or where some apparently trivial detail of antisepsis is omitted.

When pus does form, it will do so in a most insidious manner, as was proven in a patient who had entered my service for the treatment of a scalp wound caused by a blow from a brick. He was up and about the ward every day, dressing and undressing himself morning and night. Finding that the scalp was not healing well, he was brought into the operating room, and we critically examined his head. Up to this time he complained of nothing except a feeling of languor and

some headache. I found a fissure of the skull, in which pus was seen. Sending the trephine through the denuded bone, we evacuated something more than six ounces of pus. According to modern views of the functions of the cerebral cortex, we should have had aphasia, paralysis of the left arm, deafness, etc., but we had nothing. The pus was lodged between the dura mater and the arachnoid. After it was drained away and the part irrigated, a large open cavern remained, which has not since filled.

Could we with unerring certainty always provide against sepsis or purulent inflammation arising along the line of incision through the scalp, or in the vicinity of the opening made through the compact and cancellous tissues of the skull, the operation of trephining would be rendered a moderately safe and simple procedure; but as the minute and numerous angles and notches between the teeth of a trephine are so difficult to clean or render aseptic unless extra caution is observed, its use will be liable to contaminate.

Localised brain softening.—When the use of the trephine is attended with or followed by much laceration of brain substance, or by the division or occlusion of the vascular supply, that part which is thus injured gradually disintegrates and is absorbed, or takes on a low grade of inflammatory action, and may give rise to symptoms of impaired reasoning powers or insanity. When the area of destruction is small, and its situation is such that no important function is compromised, provided the patient is young and healthy, complete recovery may be expected.

Anaesthesia.—Of all the organs in the body there is none in which the effects of an anaesthetic agent are so palpable, both by subjective and objective phenomena, as in the brain. We can imagine the profound changes the intoxicant induces in the circulation when our patient is forced into a state of artificial coma; when the brain is dead to sensations of every description, and the connection between mind and matter is totally in abeyance. As the patient continues to breathe the ether, we observe the heart stroke becomes full and slow,

the respirations less frequent and more laboured. With this deranged state of the central organs of circulation and respiration, coincidently we see the peripheral vessels enlarge; the cutaneous veins, engorged and distended, stand out; the capillary circulation being greatly impeded, the skin assumes a dusky hue. Froth issues from the mouth, the eyes become prominent in varying degrees, and their conjunctival investment is turgescent and swollen. With the abolition of the corneal reflexes—the *period operatoire*, the moment at which we commence to cut,—all these manifestations are visible.

Now, in the course of the past ten years, in the treatment of one hundred and forty-seven cases of fractured skull, I have had the opportunity of observing many interesting phenomena within the calvaria in all the varied stages of anaesthesia. What struck me as of the greatest surgical interest was, when a patient entered the lethal stage, the enormously increased vascularity of the brain, which was evidenced by the great increase of its volume, the convolutions rising and crowding into every opening made by displaced bone or the trephine. As the ether was withdrawn and its effects passed off, the brain was relieved of this hyperaemic condition, and would sink back into its normal dimensions.

We can easily conceive that manipulations involving the brain under these circumstances must be, and are always, attended with serious difficulties,—its vessels giving way under the most trivial disturbance, thereby flooding the field of operation just at the moment when it is imperative that a good view of the parts should be had. Independent of the effects of ether on the vascular supply, the impression on the nerve centres, when the brain is disturbed by either injury or disease, cannot be otherwise than harmful, so that I feel assured in the vast majority of those cases of cranial or intra-cranial lesions with operation, wherever death speedily ensues, the anaesthetic has been an important contributory element.

Conclusions.—While conceding that the profession and humanity owe a heavy tribute to those who, by consecrating

their most persevering efforts and the greater part of their lives to the study of physiology, structure, morbid changes, and treatment of intra-cranial lesions by surgical intervention, have extended the span of human life, yet much remains to be done. We must not forget that hypotheses or assumptions, unsupported by years of clinical observation under the eyes of scrutinising and impartial observers, should not be accepted as facts. And it should be clearly and emphatically enunciated, that cerebral surgery demands for its successful practice not only a sound anatomical knowledge, but a most judicious and discriminating mind, as the path to success unquestionably lies in the direction of conservatism rather than needless meddling and useless mutilation.

DISCUSSION.

Dr. Wyeth thought that, as the field had been so thoroughly gone over in the papers already submitted, it would be a waste of the Association's valuable time to discuss the subject further. Only one point, he believed, had not been fully brought out and emphasised, viz., drainage of the cranial cavity, especially after trephining for abscess. In certain cases he held that a counter opening, lower down toward the base of the cranial cavity, was indicated, at least in some instances, in order to carry a small drainage catgut-twist or rubber tube. It had been done once by Allis with marked effect, and was most easily accomplished in the anterior fossa.

RETENTION OF URINE FROM PROSTATIC OBSTRUCTION IN ELDERLY MEN: ITS NATURE, DIAGNOSIS, AND MANAGEMENT.

By John W. S. Gouley, M. D., of New York County.

October 22, 1890.

While urethro-vesical obstruction occurs in young and middle-aged men from bladder and prostate stones, from acute prostatitis, from contracture of the vesical neck due to the extension of chronic urethritis, or from malignant disease of the prostate, it should not be confounded with the gradual and slow process of prostatic obstruction which rarely begins to impede urination before the age of fifty-five, and is as rarely known to begin after the age of seventy.

To the question, What is it that causes this impediment to urination in elderly men? a common but incomplete answer is enlargement of the prostate. This answer is incomplete because of its failure to specify the kind of enlargement, for it is known that elongation and also uniform general enlargement of the prostate do not obstruct the urethro-vesical orifice or impede urination. Very large prostates have been discovered after death in elderly men who had never suffered the least inconvenience in urinating, and whose bladders were in a normal condition. On the other hand, small prostates,—*i. e.*, of even less bulk than natural, with only moderate increase of the lower isthmus,—sufficiently obstruct the urethro-vesical orifice to give rise to stagnation of urine, cystitis, and even to complete retention of urine.

It is then only when the prostate is unequally enlarged that it interferes with urination, and to this even there are exceptions, for multiple tumors at its base sometimes cause true incontinence of urine, as do other forms of prostatic enlargement which prevent the closure of the urethro-vesical

orifice, and allow the urine to flow constantly from the bladder as fast as it trickles out of the ureters. In this connection, enlargement of the prostate, conveying as it does only a general notion that the organ is in an abnormal state, needs to be specified, and it can ordinarily in some measure be specified after due observation of its immediate effects;—for instance, an elderly man, from whom normal urine is constantly dribbling and who suffers no other inconvenience, presumably has true incontinence of urine due to some form of enlargement of the prostate which keeps open the urethro-vesical orifice; while another elderly man, from whom foetid purulent urine is constantly dribbling, presumably has chronic retention of urine due to urethral or to urethro-vesical obstruction from some one of the forms of prostatic enlargement specified below, urethral stricture or the impaction of a calculus in the urethra having been excluded.

Of the several forms of unequal enlargement of the prostate which obstruct the urethro-vesical orifice, the following only need now be named: (1) General enlargement with excessive development of the posterior third of the lower isthmus, called supra-montanal portion by Mercier and third lobe by Home; (2) enlargement of the posterior third of the lower isthmus without apparent increase in the rest of the prostate, sometimes called centric enlargement; (3) enlargement of one lobe, which encroaches upon the opposite lobe and obstructs the prostatic urethra; (4) unequal enlargement of both lobes, rendering the prostatic urethra tortuous and obstructing it; (5) multiple intra-urethral tumors; (6) intra-vesical enlargement of one lobe. Such are the principal forms of prostatic enlargement that impede urination.

These alterations of structure differ somewhat in their component elements. The majority of cases are diffuse leiomyomata, with a very small quantity of fibrous tissue accompanying the blood-vessels, and ectasia of the prostatic crypts, the sympexia of the crypts often dying and becoming coated with phosphate of calcium, and consequently increasing considerably in volume. They are those prostates which are

softer than normal, and which attain the greatest size. In some cases there are multiple circumscribed leiomyomata. Other cases are of diffuse and circumscribed inomata. They are the small, hard prostates which sometimes contain retention epithelial cysts. Adenomata are not so frequently found as are the myomata and inomata, and are circumscribed.

The first effect of urethral or of urethro-vesical obstruction is stagnation of urine in the bladder. The stagnant urine, even a few drachms, soon decomposes, and, acting as an irritant foreign body, gives rise to cystitis. The inflamed bladder then makes vigourous but vain efforts to expel this offending urine, in consequence of which its muscular coat increases in thickness. In certain cases the larger part of the stagnant urine is expelled, but the small quantity which remains is sufficient to induce such frequent spasmodic contractions of the bladder, that the capacity of this organ gradually decreases until it is reduced to only two or three ounces. In other cases the bladder is dilated and capable of containing a quart, or even several quarts, of stale urine. In either class of cases, unless artificial relief be promptly obtained, the consequences are of the gravest order. The urine, thus dammed up, leads to dilatation of the ureters, ureteritis, pyelitis, nephritis, and death.

It may be asked, Is it possible to make a reasonably accurate diagnosis of these several kinds of prostatic obstructions? Yes, at least in four of the six just enumerated, and it is of no little practical consequence that they be differenced, for some of them require modifications in their surgical management.

The early manifestations of prostatic enlargement do not always cause anxiety, and are often overlooked. The patient, having perhaps only vague notions of his condition, generally misinterprets the gradually increasing frequency of the calls to urination, does not perceive that his urine is slimy, pays little attention to the slight sensation of scalding during urination, is not aware of the significance of the changes in the mode of propulsion of the urine, notably the vertical direc-

tion of the jet, fails to notice the diminished size of the stream whose sudden cessation induces him to think that the act of urination is accomplished, when, to his surprise, more urine is expelled drop by drop, to be succeeded by the former perpendicular stream, and again by the drops, and does not solicit the advice of his physician until all these symptoms are greatly intensified, or until he is already distressed by complete retention of urine.

Of the several steps in the diagnosis of abnormal urination and retention of urine due to prostatic enlargement, chiefly the following are employed:

The history of the patient's prior ailments, of his actual infirmity, and of his habits of life, having been obtained, an inspection of his general condition is made. His mode of urinating, if he can urinate, is noted, and his urine is duly examined. Then follows physical exploration.

The first step in this exploration is palpation, then percussion of the hypogastric region. If there is no tumefaction, if percussion is clear, it will be inferred that the bladder is empty, or nearly so; and if at the same time it is noticed that normal urine is constantly flowing, it will be fair to infer that there is incontinence rather than retention of urine, although the involuntary flow of urine indicates oftener its retention than its incontinence; but if there is a rounded, tense, and painful tumor, dull or flat under percussion, and with this a constant desire to urinate, the inference will be that there is acute retention of urine. If, however, there happens to be a diffuse, slack swelling with fluctuation, also flatness under percussion, a dull instead of an acute pain, and no urgent desire to urinate, but slobbering of urine, the existence of chronic retention of urine will be inferred.

It is proper to state, that while percussion possesses some value in the diagnosis of retention of urine, it is not to be absolutely depended upon. For example, flatness on percussion does not necessarily indicate the presence of urine in the bladder, for, in the hypogastric region, flatness may be owing to a solid tumor in front of the bladder. Circumscribed flat-

ness and fluctuation may indicate a pelvic abscess as well as stagnation of urine in the bladder, with more or less distension. Resonance on percussion does not indicate absence of retention of urine, for such resonance may be owing to the presence of knuckles of small intestine between a distended bladder and the anterior abdominal parietes.

The second step in physical exploration consists in making a digital examination of the prostate through the rectum, by which some idea may be formed of the size and consistence of the organ. As a general rule, hard prostates are little if at all enlarged, while soft prostates are large and sometimes attain enormous dimensions. By this same digital examination, the form as well as the size of the prostate is estimated. It may be simply elongated; one of its lateral lobes may be larger than the other; it may be uniformly enlarged; it may be nodulated, and this suggests the existence of multiple tumors; or it may not be larger than natural, but its apex may be rounded instead of being insensibly lost in the membranous region of the urethra. These are the principal circumstances to be noted from a rectal exploration.

The third step in physical exploration consists in ascertaining the particular kind of prostatic enlargement which affects urination. The exploration is made by introducing certain metallic instruments through the urethra into the bladder. This method was suggested and practised by Mercier many years ago, and is as follows: A rectangular, short-beaked

FIG. 1.—Mercier's rectangular sound.

metallic sound (Fig. 1) or catheter is slowly introduced until it reaches the prostatic region of the urethra. If, then, the handle turns to the right of the patient, it is because the point of the instrument has been deflected by an intra-urethral projection of the left lobe of the prostate, and *vice versa*.

If first to the right, and then to the left, half an inch or thereabouts farther back, it is because the point of the instrument is deflected first by a projection of the left and then by a projection of the right lobe of the prostate, showing unequal

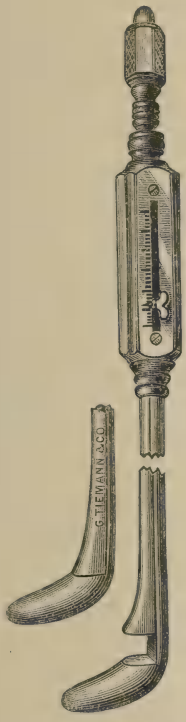


FIG. 2.—The author's first cysto-pylometer.

FIG. 3.—The author's second cysto-pylometer.

enlargement of both lobes. If the sound meets no impediment until it has nearly reached the bladder, and then its blunt heel encounters an obstacle, it is because there is enlargement of the posterior third of the lower isthmus

(supramontanal portion, third lobe). By moderately depressing its handle and gently pushing the sound onward, it enters the bladder. Its beak is then reversed, and turned to the right and to the left in order to form some idea of the general character of the obstacle, if there be intravesical projection.

But for greater precision the cysto-pylometer (Figs. 2 and 3) may be used. By means of this simple instrument the thickness of the obstacle can be accurately measured, and it can be ascertained if this consists of a crescentic valvule, of a "bar," or of a sessile or a pedunculated tumor.

Fig. 2 represents the first cysto-pylometer devised by the author. It is so constructed that the vesical extremity of the male blade can easily override any urethro-vesical barrier without giving pain to the patient. This construction of the jaw of the male blade rendering the prehensile part a trifle too short, a new pylometer (Fig. 3) with the male prehensile part one third longer, was lately contrived with the view of remedying the defect of the first instrument, but in this new pylometer the inclination of the jaw is so abrupt that it is necessary to observe the greatest care, in opening the jaw of the instrument, to carry the male part over a urethro-vesical barrier.

The several forms of prostatic enlargement already indicated give rise to acute and to chronic retention of urine. By acute retention of urine is meant a sudden hindrance to the expulsion of urine from the bladder. It is characterised by great pain in, and an almost intolerable sense of distention of, the bladder; by a scalding sensation in the urethra; and by a constant desire to urinate, which seems incessantly on the point of without being gratified.

Acute retention of urine occurs as well among elderly men with incontinence, as among those who have no hindrance to normal urination, or only a very slight impediment,—*i. e.*, the beginning of prostatic obstruction.

The mechanism of acute retention of the urine is as follows: After exposure to cold, venereal excess, or a debauch, the pelvic vessels sometimes become so gorged with blood

that the prostate swells, principally in the direction of the urethra and urethro-vesical orifice, to the extent of occluding the passage. This sudden engorgement is soon followed by exudations which do not always entirely disappear. Resolution is occasionally very slow, and even fails; the swollen prostate is then little if at all diminished, and acute retention may thus pass into chronic retention of urine.

Acute retention of urine is ordinarily preceded by dysury for an hour or two. Urination is unduly frequent, irregular, scanty, and accompanied with scalding pain in the whole urethra until strangury occurs; then urine mixed with mucus and blood escapes only in drops, at each spasmodic contraction of the bladder. Finally, a few hours after the exposure or debauch, comes ischury. The patient is now unable to discharge a single drop of urine, and is tormented with violent straining, which favours the escape of faecal matter, and even causes prolapse of the rectum. The passage being entirely occluded, the urine accumulates from hour to hour until the bladder is greatly overdistended and loses its power of contracting, generally for a time only, sometimes indefinitely. At the expiration of the first day the suffering is still very great, the patient becomes more restless, feverish, and thirsty; his face is congested from the constant straining, his skin is dry, and his intestines are distended with gas. On the second day the pain extends to the lumbar regions, and the dryness of the skin is succeeded by profuse perspiration having a urinous odor. The urine then begins to dribble, and this is delusive to the patient and his family, who imagine that spontaneous relief has come, when in truth the urine is still accumulating in the bladder, a little only slobbering out from overflow. The consequence of this misinterpretation of a symptom is failure to invoke medical aid until it is deemed proper to repress what is wrongly believed to be a superabundant flow of urine. Meanwhile the patient lapses into a muttering delirium, his utterances being obscured partly by the extreme dryness of his tongue and mouth. The secretion of urine is now lessened (oligury), and may soon

be abolished (anury), although the bladder is distended to the extent of four or five pints. In some cases the physician is not summoned until many nauseous, useless, and often hurtful nostrums and diuretics have been administered.

In the management of acute retention of urine, to temporise or to rely solely upon the use of medicaments in any case is to place the life of the patient in great jeopardy. Having informed himself of the circumstances connected with the case, and having made a preliminary examination, the physician selects the form of catheter best suited, and forthwith introduces it, allowing the urine to flow very slowly, and every few seconds stopping up the distal end of the catheter. If called during the first twenty-four hours, he may empty the bladder at one sitting of three quarters of an hour, but if on the second day he should draw off slowly only about one third of the contents of the bladder, and after this, once every two or three hours, he should introduce the catheter and allow more urine to flow, until in a day or two he finally empties the bladder, or he may leave in the catheter with its distal end closed, and direct that six ounces be drawn off every two hours. The reason for these precautions is that the too precipitate evacuation of an overdistended bladder is sometimes followed by distressing and dangerous effects, such as profuse haemorrhage from its mucous membrane, and consequent general cystitis, polyury, etc.

The after-treatment should accord with the particular necessities of the case. The use of the catheter should not be abandoned until the patient is able to empty spontaneously his bladder, which should not again on any account be allowed to become overdistended. If the swelling of the prostate does not diminish, the use of the catheter should be continued indefinitely. In the mean time the urine should be kept bland by the internal administration of diluents, and the bladder should be irrigated once daily with a warm boric-acid solution, three grains to the ounce, with the addition of one fourth of peroxide-of-hydrogen solution.

By chronic retention of urine is meant a gradual and slow

hinderance to the expulsion of urine from the bladder. Its characters are not generally perceived by the patient, and are not always manifest to the physician, partly because this retention of urine does not become complete for many weeks or months, or even may never become complete. When incomplete it is at first characterised by much irritability of the bladder, which is constantly wrestling against the obstruction to force out the urine; but this subsides in the course of a few months, when the sensibility and contractility of the bladder are somewhat impaired, as evinced by less painful, less urgent, and less frequent urination, and by the stream being small, feeble, frequently interrupted, and replaced by a succession of drops. When the retention is complete it is characterised by inability on the part of the patient to expel a single drop of urine.

As already stated, chronic retention of urine is the outcome of gradual, progressive, but ordinarily incomplete closure of the urethra or urethro-vesical orifice by unequal enlargement of the prostate which obstructs the canal. From being incomplete, this retention of urine becomes complete when the enlarged prostate further swells to the extent of closing the passage. It again becomes incomplete when from overdistention of the bladder the urethro-vesical orifice opens sufficiently to allow the urine to overflow and slobber out.

The differential diagnosis of acute and chronic retention of urine having been set forth in a paper read before the Medical Society of the county of Kings, and published in its proceedings in January, 1882, will not now be discussed.

Grave errors are occasionally made in certain cases of extreme distention of the bladder from neglect to use the catheter as a means of diagnosis, for in elderly men the urine sometimes accumulates so slowly and gradually that the vesical distention causes little or no pain, or the slight pain is attributed to something else, and increases, in the course of weeks or months, to such an extent as to mislead the unwary. Such cases have been confounded with ascites, with abdominal tumors connected with the omentum, intestines, liver, or

kidneys, with hydatids, with hydronephrosis, and even with faecal impaction. In one instance a trocar was plunged into the abdomen, two inches below the umbilicus, the physician believing the case to be one of hydatid cysts, and seven pints of fluid drawn, which proved to be urine.

To the question, What is the most suitable catheter in cases of retention of urine from prostatic obstruction? the reply is, that one catheter cannot answer in all cases. The catheter should, as far as possible, be adapted to a particular kind of obstruction. Therefore the physician should be supplied with several very different catheters, and, after due exploration, as before indicated, be able to select one which is adapted to the particular deformity found in the prostatic region.

For exploration the metallic instruments already described should be used, but, after this and for evacuative catheterism, metallic catheters should be avoided, for it is by their use that false passages are so commonly made. The most dangerous among these is the so called prostatic catheter of great curve and extra length. The main difficulties in catheterism, as a general rule, are not due to increased length of the prostatic urethra, but to its several deviations; and a rigid catheter of great curve, even when used with caution, ordinarily fails to pass, besides being very apt to tear the urethra.

The catheters which are indispensable in the physician's armamentarium, all but one,—*i. e.*, the soft, vulcanized India-rubber, "velvet-eyed" catheter,—consist of a tubular fabric of silk, coated with a pliable material, with a single eye close to the vesical extremity; the form of this extremity being in accordance with the particular use to which each instrument is designed. The most useful are the five forms indicated below.

The catheter (Fig. 6) woven upon a curved stylet is well adapted to cases of moderate supramontanal (centric) enlargement, or of uretho-vesical bars. When greater curvature is needed, as in a case of very large tumor of the supramontanal region, or when a false route impedes catheterism, a stylet

may be inserted, and the catheter introduced after the method of William Hey. This efficiently replaces the so called prostatic catheter. All the pliable catheters are from twelve to fourteen inches in length.

The olivary catheter (Fig. 7) is also woven upon a curved

Fig. 4. Fig. 5. Fig. 6. Fig. 7. Fig. 8.

stylet; but the straight olivary catheter, very pliable for an inch from the point to the eye, is useful in cases of extremely tortuous urethrae from unequal enlargement of both prostatic lobes.

The elbowed catheter of Mercier (Fig. 4) is particularly

well adapted to cases of intra-urethral tumors, of unilateral enlargement, or of unequal enlargement of both lobes of the prostate, but is also successfully used in cases of urethro-vesical barriers.

The crutched catheter (Fig. 8), more angular than the elbowed, answers well in cases of great enlargement of the supramontanal region, the heel instead of the point of the instrument coming in contact with and gliding over the obstacle.

The double-elbowed catheter of Mercier (Fig. 5) is adapted to cases of enlargement of the superior isthmus, together with supramontanal increase, causing great depression of the floor of the prostatic sinus.

Respecting the size of the catheters, the question, Should they be small, or large? is very commonly asked. The answer is, that they should be neither large nor small, but adapted to the particular urethra to be catheterised. A catheter of full size for a urethra under the average is too small for a urethra of extraordinary large caliber. A No. 14 (English) is small for the latter, and entirely too large for the former, to which a No. 7 (English) is likely to be much more suitable. These, however, are extreme cases. The most convenient size to the physician and to the patient, one that strikes a fair average, is No. 9 (English). It is rare to find urethrae that will not admit a No. 9, particularly in cases of stagnation of urine from prostatic obstruction, stricture being excluded. Many patients, who are obliged to catheterise themselves, labour under the delusion that small catheters are safest and give least pain. To the use of small catheters may be ascribed the majority of prostatic false routes, and the frequent attacks of urethritis and orchitis from which auto-catheterists suffer. The best sized and safest catheter for each individual is the catheter that moderately fills, and therefore does not overstretch, the urethra. Such an instrument gives less pain than the too large or the too small catheter.

The India-rubber, "velvet-eyed" catheter is ordinarily the safest for general use by the inexperienced, and for auto-

catheterism, but its long continued use upon or by the same patient is not advisable. The security felt by the patient is often a source of danger, for he is soon heedless of the precautions advised by the physician, and suffers much in consequence. How much more frequently the physician is called upon to remove from the bladder fragments of or entire India-rubber catheters, than of other firmer instruments! But, aside from these accidents, the urethra is often greatly irritated by the rubber catheter, not on account of this material itself, but of the carelessness, boldness, and undue frequency of its use, which come of its easy introduction. Painstaking, prudent, and intelligent patients soon acquire sufficient skill in the use of any of the several pliable catheters, and learn to keep them in good order.

An important advantage of the India-rubber catheter is that it can be kept in an aseptic condition without injury to its structure. Very lately Vergne, a Paris manufacturer, has announced that he has succeeded in making pliable catheters which are susceptible of being rendered aseptic without injury.

It frequently happens that the physician is called upon to relieve patients from retention of urine when ordinary catheterism is impossible by reason of false passages in the prostatic region. In such cases the common practice has been to make a suprapubic puncture with an ordinary trocar and insert a catheter or a silver tube, to be opened as often as necessary for urination.

Twenty years ago capillary puncture with aspiration was introduced to the profession by Dieulafoy, and this novelty soon became the fashion. Many successful cases were reported, and capillary puncture with pneumatic aspiration was to be *the* operation in retention of urine. Although at first no reference was made to accidents, in a few years the vogue of the process was on the wane: now it is employed with more discrimination, and only to relieve extreme distention once or twice, and not ten, twenty, or thirty consecutive times in the same case. Capillary puncture with pneumatic

aspiration is an excellent resource in medicine and surgery: it cannot be too highly praised, but its abuse should be loudly decried.

No kind of puncture of the bladder ever can remove a false route, and capillary puncture is not so safe a process as was at first believed. The consequences of the escape of a few drops of urine in the praevesical connective tissue have been so disastrous in a number of cases as to deter cautious physicians from employing this method of relief except under circumstances of the greatest urgency; but there is an equally forcible objection to its general employment, to wit, a simple, safe, and efficient procedure has existed for the past forty years. Why it has not been more frequently employed is not apparent, but it is nevertheless valuable.

In the year 1850 Dr. Mercier published in the *Union médicale* an account of his invaginated catheter, for use in cases of prostatic false routes. Descriptions and drawings of the instrument have appeared in different books and periodicals, but little heed seems to have been otherwise taken of this precious device. It may be fairly stated that in ninety-five per cent. of cases of prostatic false routes the invaginated

FIG. 9.—Mercier's invaginated catheter.

catheter can be successfully applied. The instrument (Fig. 9) as now made consists of two catheters—one metallic, the other non-metallic. The first or female part is a thin-walled No. 10 (English) silver catheter, eleven inches long, very

slightly curved, and having in its concavity, about half an inch from the point, an oval eye five eighths of an inch in length and three sixteenths in breadth. From the vesical extremity of the eye is an inclined plane, which is lost in the floor of the opening at the distance of a quarter of an inch, serving to tilt up the point of the male part. This male part is a flexible but firm "gum" catheter (No. 7 English) eighteen inches long, fitting loosely in the lumen of the female part, and having a single eye an eighth of an inch from its point.

The way to use the invaginated catheter is to introduce the male into the female part as far as the eye of the latter, then to pass the instrument as far as the obstacle and engage the point of the metallic part in the false route, and finally project the male part, which will override the false route thus blocked and enter the bladder. If no urine should flow, it would be owing to closure of the eye of the male part by a blood-clot, which might be forced out by the injection of a little water through the male catheter. The female part can then be withdrawn and the male left in as long as may be required; this is the reason for the increased length of the male part.

In twenty cases the author has resorted to divulsion of the prostatic false route during catheterism with the invaginated catheter. This process, though comparatively easy, is not advisable except in the most experienced hands. While the immediate result has generally been good, it has not been lasting, for he has not known spontaneous urination to continue more than two years in any case after this operation.

The management of ordinary cases of chronic retention of urine from prostatic obstruction, without false routes, may be summarised as follows:

Catheterism having been successful, only a part of the stagnant urine should be drawn off, and the bladder not completely emptied for a day or two, and sometimes not for a week, but the quantity of retained urine should be lessened every day. Then the bladder should be daily

washed. In many cases it is not wise to begin at once with irrigations, or to use them too frequently. Bladders that have long contained purulent, slimy urine do not at first tolerate the contact of limpid fluids of low specific gravity. It is therefore necessary to increase the density of the water used for vesical irrigation in such, and, indeed, in the great majority of cases.

A good formula for vesical irrigation is the following, after dilution of one in twenty:

℞ Hydrarg. chloridi corrosivi . . .	gr. v;	
Ammonii chloridi	gr. xx;	
Spir. gaultheriae	fl ʒ ss.;	
Acidi borici	ʒ j;	
Glycerini	fl ʒ viij.	M.

To half a fluid ounce of this solution are added seven fluid ounces of warm water (110° F.) and two fluid ounces and a half of peroxide-of-hydrogen solution.

These ten ounces of fluid are sufficient for four washings of two ounces and a half at each sitting. Only in very exceptional cases should the bladder be irrigated more than once a day. After the bladder has been completely emptied, evacuating catheterism should be employed every five or six hours, except in cases of contracture with diminished capacity, when the catheter may be needed every two hours. In these cases it is necessary to resort to gradual hydraulic dilatation, a very delicate operation, which is successful when there has not been too long continued cystitis with connective-tissue sclerosis.

The general treatment in cases of stagnation of urine should be conducted in accordance with sound hygienic principles, and little else. Opium, belladonna, or hyoscyamus should be used only to relieve extreme pain and spasm. The urine should be kept bland by the use of diluent beverages, and the rectum completely emptied every day, for, next to stagnant urine in the bladder, the accumulation of faeces in the rectum is the greatest source of discomfort. A little

generous wine at dinner, and a drink of brandy or whiskey and water at bed-time, may be allowed without fear of causing local irritation; it is only in excess that alcohol is hurtful in these as in all circumstances.

The question of prostatotomy and prostatectomy, internal and external, will not now be discussed, but a few words will be said of circumstances under which a portion of the prostate may be excised during suprapubic cystotomy for a tumor or stone. When epicystotomy has become necessary for the extraction of a stone, or the ablation of a morbid growth, it may be proper to excise a portion of the prostate, or a pedunculated prostatic tumor projecting into the bladder and interfering with urination. Pedunculated tumors can

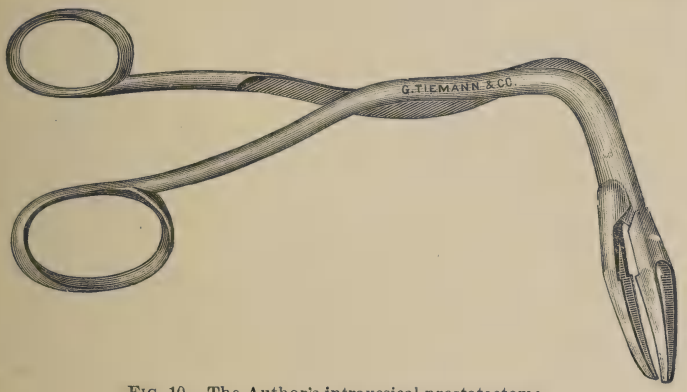


Fig. 10.—The Author's intravesical prostatectome.

be excised by means of scissors with rectangular blades; but if a bar or median outgrowth is to be cut, the rectangular intravesical, suprapubic prostatectome (Fig. 10), constructed on the principle of the hawk-bill scissors of Dr. Skene, will be found to answer the purpose of excising as considerable a portion of the prostatic obstruction as may be desired, leaving a V-shaped chink for the escape of urine.

The removal of a urethro-vesical tumor of the prostate during suprapubic lithotomy was done about half a century ago by Amussat.

DISCUSSION.

Dr. E M. Moore, of Monroe County, thought no subject brought before them to-day was of more importance than this one. The brilliant surgery in cases of intra-cranial disease was charming to listen to, but of very moderate utility in practice. But every one of them present would frequently meet with cases of the kind discussed in the paper which had just been read. He was quite sure that they were mismanaged a great many times. The author spoke of retention of urine and gave causes. There were some causes which he had left out, intentionally. He mentioned turgescence producing enlargement of the prostate and retention, but he did not mention that retention frequently occurs, not from turgescence, but from over-distention of the bladder, the person enduring the distention from voluntary effort a little more than has been his habit. He may have been in a public place and could not well go out.

The bladder when filled is like a tumor, the muscular coats become tense, there is a little bearing down by the abdominal muscles, the viscus is pushed forward, the neck held against the arch of the pubes, which prevents the passage of the urine. After it becomes still farther distended, there is a little stretching of the prostatic orifice, and incontinence takes place.

The author had laid a little stress upon a point with which a few years ago the profession was not familiar. He was sure he was not, for it came to him through experience.

The point was this: When a man has been carrying a very full bladder, you must not empty it at once. When a man has a full bladder, the first impulse is to get the water out. As a consequence there is haemorrhage, and one is almost sure to establish an active cystitis. Finally, if he is not careful, the patient perishes from the cystitis and the sepsis attending it. Hence the plan of emptying the bladder slowly. For instance, not a long time ago he was called to see a gentleman who, unaware of it, had been carrying a full bladder;—he suddenly found he had retention. It was very plain that the patient had had this accumulation going on for some time, resulting from enlargement of the prostate, but not producing much suffering. The fundus of the bladder had almost reached to the umbilicus. Dr. Moore drew off a pint, only about one fourth of what was there. At the end of four hours he had some more drawn off, at the end of another four hours some more, and so continued to draw from time to time a little more than the amount secreted during the interval, and in that way gradually brought the bladder down so that it could be emptied entirely in about three days. At the end of that time there was ammoniacal urine, so ammoniacal as to produce a very strong odor. Under these circumstances we are almost sure to have a cystitis,—a cystitis of a very serious kind: hence the great

gravity of the condition. The author had called attention to the fact that the after-management should be by the use of boracic acid, two grains to the ounce, injected into the bladder. This was moderately antiseptic, and was a very admirable addition to our therapeutics,—a harmless acid which supplies the natural acidity that should exist in the urine, neutralising the alkaline condition, and in an artificial way bringing about a state of things which nature had intended should exist. The admirable effect of washing out the bladder with this acid surprised him every time he compared it with his former experience.

With reference to passing catheters, we must not forget that, as a rule, false passages are made upon the side and upon the lower portion of the prostate if they are not made in the membranous portion of the urethra. They are not apt to be made on the upper part of the urethra. Among the various forms of catheters which he had seen used, he found none, he must confess, that gave him more satisfaction in the case of an old man with enlargement of the prostate than the one to be described. He did not know whence he got the idea, but he rather thought it came in his own practice. He called it the sled-runner. In using it he violates the ordinary rule, taking rather a small catheter, not a large one. Take No. 6 or No. 5, English scale, introduce into it an ordinary wire, and at a distance of half an inch or a little longer from the end of the wire make a turn or curve so that the end of the catheter shall press against the upper surface of the urethra. The curve should make an angle of about forty-five degrees across the caliber of the tube. The urethra of the old man is usually large, and you will be able to coax the instrument along; when it comes to the prostate, the point being against the upper surface, it will go clear of the obstruction. That, in his hands, had been more successful than any other single device. But, as Dr. Gouley had said, there is no single device which we can rely upon entirely.

He wished to say one word with reference to aspiration of the bladder, which all had done. Dr. Ferguson had just told him that the delicate little trocar employed for that purpose was first used by Dr. Dox. It was certainly a very pretty resource when we were entirely unable to accomplish what we desire with the catheter.

The prostate itself presents the various forms which the author had described, and which most have seen. In making a supra-pubic cystotomy not a great while before in a case in which the prostate was very large, after removing the stone, he introduced his finger and felt a projection on the third lobe which stood up like a nipple, perhaps half an inch broad at the base, running up to a point, perhaps three quarters of an inch in length. It was just flexible enough to move backward and forward and constitute a valve. In fact it acted like a ball valve, occluding the opening. He took a pair of forceps which he happened to have with him and bit it off, and relieved the patient.

Dr. Strong, of Chautauqua County, said he had been especially interested in the paper, for near him four physicians had died of obstruction to urination through enlargement of the prostate. In the case of a late fellow of the Association, it was supposed that there was stone in the bladder which it was believed could be felt by the sound. The bladder was opened for the purpose of removing the stone, and although a slight incrusting calculous deposit was found upon the mucous membrane, there was no stone. The patient died three days after the operation. In another case the physician was still under his care, was able to get along very well with a soft catheter, although one or two ounces of residual urine always remained. With the aid of a city surgeon, he had made a careful measurement of the prostatic obstruction in the manner described in the paper.

Dr. John A. Wyeth, of New York County, thought that the ideal method of treatment in persistent cystitis which was caused by prostatic enlargement was the one last mentioned in the paper, that is, suprapubic section. It seemed to him that in these chronic cases we are fighting at a great disadvantage if we try to relieve the condition through the urethral route. He certainly had not had sufficient success with the latter method to justify him in continuing it when he could obtain an inlet into the bladder by suprapubic cystotomy, which gives not only immediate relief from the strain put upon the bladder by its own inability to empty itself, but which gives full command of the region involved. Within the preceding two years he had had between twenty and thirty cases in which he had performed suprapubic cystotomy. In a number of these, he could not then recall the exact number, there were tumors of the prostate. Five cases come to mind in which by no means possible could he have seized these tumors through the urethra, and given anything like the relief which followed suprapubic cystotomy. He was much impressed with the condition which came under his observation after opening the bladder, and with the fact that the original cause of the trouble was within touch of his finger. It certainly would have been impossible to have given complete relief through the urethra.

It had been Dr. Wyeth's practice to do suprapubic cystotomy in the manner described in our text-books; to use in the removal of the tumors the ordinary Spencer Wells clamp forceps,—the fenestrated forceps with the teeth cut out, carrying it down alongside the finger, grasping the tumor and twisting it round and round until it came off; and after removing all of it, apply the Paquelin cautery to the wound. The results had been gratifying. In no case of his had death occurred, and relief from cystitis had been secured. The bladder having lost its tone, had not in these cases regained its ability to empty itself; in one he thought it would, but was finally disappointed.

With regard to treatment of decomposition of the urine in the bladder, which has been touched upon, there is a method by which we can sterilise the urine and prevent the formation of bacteria without going through the urethra at all,—that is, by the administration of the oil of gaultheria by the mouth. It is a well known fact, that if you give a patient four or five drops of the oil of gaultheria four or five times a day, his urine, drawn twelve to eighteen hours afterward, will not decompose. It may be left in a vessel in a warm room four or five days, and it will not show decomposition. He therefore concludes that we can thus sterilise the urine, and at the same time avoid danger of injury to the urethra.

Dr. Ferguson inquired of Dr. Wyeth what had been his practice with regard to drainage after suprapubic cystotomy.

Dr. Wyeth replied that six to eight weeks was the longest that the tube had been worn. There were some cases in which he withdrew the tube at the end of the third week. In some cases of stone or foreign body he sewed the bladder up at once, and got normal urination, but in most cases it was best to use the drainage tube. When the urine became clear, the tube was removed. He had a case then in which he would have to establish permanent drainage for an impermeable prostate. It was the only case of the kind which he had had. The usual apparatus was a soft rubber tube, introduced from above the pubes, with a flange and a stopcock.

Dr. Gouley, being called upon to close the discussion, said that in his paper he had tried to avoid speaking of cases. He had simply tried to state what his convictions were, based on considerable experience. Therefore he had tried to lay down some general principles which he trusted would not be considered too dogmatic. He thought he was warranted in doing that from a good many years' observation of cases. There were only a few points which he should answer.

Dr. Moore's remarks always interested him. They were always pertinent, they always brought back some interesting recollection. Dr. Moore had made allusion to a kind of retention of urine which came without a material prostatic obstruction. Paré, in his quaint way, first described a most interesting case of retention of urine which occurred in a young man who had taken his lady somewhere (Dr. Gouley had forgotten the details), but he rode many miles and many hours with a constant desire to urinate, which modesty prevented. Finally, when he came to dismount he found that he could not empty his bladder. Being in great distress, Paré was sent for. He introduced a catheter and relieved him. This case was a very interesting one. Here was a healthy young man, with no urinary disease. His bladder became over-distended.

When the time came, as he supposed, for opening the urethro-vesical orifice, it would not open. There was a spasmodic contracture at the urethro-vesical orifice, and it is now recognised as not being an uncommon thing. But that had nothing whatever to do with prostatic disease. It might occur in a perfectly healthy person, whether young or old. It has occurred among the old, and he thought Dr. Moore would recollect a case which had become celebrated because it occurred in a very distinguished man, a mathematician. He was detained many hours at a feast, sat long at the table, had a pressing desire to urinate but could not gratify it, and when the opportunity came he found it impossible to accomplish it. In this case, the patient being an old man, the bladder vessels became greatly engorged, and probably there were exudations, for he died.

Another interesting point mentioned by Dr. Moore, was one which he himself had endeavoured to bring forward, that is, the necessity of emptying gradually a bladder which had been distended a long period, particularly where there was chronic cystitis. We were indebted to Sir Benjamin Brodie for calling our attention to this. The speaker said that Dr. Moore would remember those admirable lectures of Brodie's on the urinary organs, and how well he described the case of a young man who had had long retention of urine, stagnation with cystitis. He was suddenly relieved of this purulent urine, inflammation followed, and he died in a few days. He still read those lectures of Brodie now and then, always with renewed interest.

He asked Dr. Moore to pardon him, stating that he had no desire to criticise him, but he wished to say that his sled-runner was simply this (showing an instrument), a form of instrument which had been used many years. The idea was borrowed from Mercier.

Dr. Moore said he did not claim originality; it was the application of the idea to the common catheter.

Dr. Gouley, continuing, said it was a very excellent device. He had often used it. As to aspiration, before he could think of Dr. Dox's name, Dr. Ferguson came to the rescue as always. And in justice to the memory of Dr. Dox, he wished to say that in his article of 1872 he gave him full credit.

In reply to Dr. Wyeth's observations on suprapubic section, he was in full accord with him regarding the importance of excising the bars at the neck of the bladder when this operation has been performed. It was a good operation with this (exhibiting his intra-vesical prostatectome), or any other instrument;—the instrument should be adapted to the case. The tumor may be sessile, it may be a bar, etc., facts long since recognised, for they were removing the prostate two centuries ago. And by the way, the prostate was discovered only about the middle of the sixteenth

century. Removal of tumors of the prostate by suprapubic cystotomy was a good operation. He would not, however, do suprapubic cystotomy for that purpose in every case. He should be very particular in the selection of cases. He believed that in the majority of instances the bladder could be reached best by the urethra. This of course would depend upon the skill of the operator, and upon his judgment in the selection of an instrument best adapted to the case. Back of all this was the care with which he makes his exploration and establishes the diagnosis.

He considered the operation of suprapubic cystotomy for mere drainage of the bladder as the most unsurgical and the most unwarrantable of all operations. He should not want it performed upon himself. It was only the preceding week he presented to the class at his clinic at Bellevue a specimen of contracted bladder,—quite contracted. That bladder was half filled with creamy pus, the prostate was normal, there was no urethro-vesical obstruction whatever, there was no enlargement of the prostate. A suprapubic cystotomy had been performed, the wound allowed partially to close around the catheter which had been retained three months. The interesting point (and he mentioned the case because it was so interesting clinically and pathologically) was this: The poor fellow was under treatment for cystitis; cystotomy was performed to relieve the cystitis; but the cystitis was only a consequence of something else,—namely, pyelitis. The patient had a pyelitis first, induced by a calculus; dilatation of the pelvis of the kidney took place; and the vesical symptoms were due to the renal disease, as they often are. Severe cystitis is often found even before the development of tuberculosis in the bladder. The first *symptom* of tuberculosis of the urinary organs is cystitis, pus passing from the pelvis of the kidney, which may be first invaded, and the bladder secondarily. The symptoms, then, of cystitis may depend upon many different things, and it is not wise to go blindly forward and do suprapubic cystotomy to relieve a cystitis, or even a contracted bladder, without knowing what is behind. In the case referred to, he found three stones in the kidney. If a diagnosis had been correctly made and nephrotomy performed months before, the patient would have been cured. He would not have had a cystitis, or his cystitis would have disappeared. Suprapubic cystotomy, therefore, he considered too grave a procedure to resort to without proper discrimination.

Another point he had noted in cases of contracture of the bladder which occurs from prostatic obstruction. Diminished capacity of the bladder is a most sad complication of prostatic obstruction, but it gives a warning; it requires months and months, with constant spasm and suffering, to produce it. There is plenty of time to treat such a case. He had treated scores of them by gradual hydraulic dilatation of the bladder—a method which he had mentioned in his paper. It was a very slow process. Several years ago he read a paper before this Associ-

ation on contracture of the bladder, and he believed that he there mentioned some cases and gave results: how very disappointing at first the cases are, but the final result in the majority is good. A small quantity of water is thrown in first, and is gradually increased in amount until the bladder is brought, after many sittings, to its normal capacity.

Another word, which he would direct to Dr. Dudley, for he was interested especially in gynecology. Some years ago, in fact twenty years back, gynecologists were opening the bladders of women for cystitis. Cystotomy for cystitis was the craze. It became the craze after Dr. Willard Parker published his very interesting paper on cystotomy for cystitis. But Dr. Parker's cases will not bear very great scrutiny. The majority of them were cases of stone in the bladder. Of course there will be cystitis where there is stone in the bladder. Why not perform cystotomy for stone in the bladder, and cure both? But his paper was published with the idea of illustrating *cystotomy for cystitis*. After its publication there was a great craze among gynecologists for vaginal cystotomy for cystitis. He used to see a good many bladders opened. He asked a distinguished obstetrical professor the other day, whether they were cutting holes into the bladder for cystitis, and he said "No; we have given that up." He was trying gradual hydraulic dilatation, and was doing well by that method in contracture. He would like to ask Dr. Dudley whether he was cutting buttonholes into bladders, or whether he was resorting to this excellent method of gradual dilatation.

Dr. Dudley, in reply, said he had never made a buttonhole operation for cystitis. He had never made an artificial vesico-vaginal fistula except for the removal of stone. He had treated the cystitis by injections, using saturated boracic acid solution, and had accomplished the object; had also used a weak solution of pepsin with good effect.

Dr. Gouley, continuing, said that, Dr. Dorsey, he thought it was, recommended pepsin nearly a hundred years ago. He was very glad to hear that our younger gynecologists had given up cystotomy for cystitis in women. He would not mention a case, but might say that he had very little to do with that kind of practice. He had perhaps operated upon half a dozen women for tumors of the urethra, and the case he would now refer to was a lady of seventy-two or seventy-four, upon whom he once operated for a urethral tumor. He removed the tumor, and dilated the urethra so that he could get his finger into the bladder which was contracted. She was urinating every five minutes. The bladder held half an ounce of water. When the wound in the urethra healed, he began to dilate her bladder, and increased it from half an ounce to five ounces. It took him several months to accomplish that. He told her it would probably become reduced to three ounces, but since that time she has

been able to retain four ounces of urine. In her case it had been proposed to make one of those buttonhole operations, and he dissuaded her from it. This was fourteen years ago, and she is now stout and in good health.

If he understood him right, Dr. Wyeth had said the bladder did not empty itself even after the bar had been removed. That had not been his experience, even in cases of ten to twenty years' stagnation. If it did not empty itself, it was because enough of the bar had not been removed. However, there might be exceptional cases.

Respecting oil of gaultheria internally, he had no objection to its use, but when the bladder was rendered septic it was generally from the outside; it was generally from the catheter. It was a great deal better to keep the bladder aseptic by not using infected catheters. If we use catheters which are not infected, we will have no septic cystitis.

Dr E. D. Ferguson, of Rensselaer County, said that he did not believe in cystotomy in women as frequently as it had been done in former years, but there were circumstances in which he believed the operation was not only justifiable, but that it was our imperative duty to perform it. He had performed it a good many times, and he could not say that he had ever regretted it. But he had always done it where there were urgent circumstances, and persistent cystitis. To mention a case: Twelve years ago, a patient as she lay upon the table seemed about dying from urinary infection due to cystitis. The material which was drained through the catheter consisted of thick pus; she was in a semi-comatose condition. Upon doing cystotomy and establishing drainage, she gradually began to improve, and is to-day a healthy woman. He had no doubt but that the operation had been needlessly performed, just as the operation of trachelorrhaphy had been often needlessly performed, under the stimulus of fashion. He believed that in each instance in which he had performed the operation it was justifiable; certainly it gave relief.

Dr. Cronyn, of Erie County, asked what was the object in making cystotomy in the female when the urethra could be so easily dilated to any required extent.

Dr. Ferguson replied that we may dilate the urethra a little too much, thereby creating a more enduring disability,—one not as manageable.

Dr. Cronyn said that if incompetency followed the dilatation, he would charge it to an improper mode of dilatation. He had dilated the female urethra sufficiently often to be convinced of that fact.

Dr. Ferguson considered it a choice of methods to attain a certain purpose, and that was drainage and vesical rest.

Dr. Gouley, in reply, said the secretary was a very brilliant man, a very clever man, and he did not like to say anything against him, but he would say that he had often performed cystotomy for cystitis. He had deliberately cut the neck of the bladder deeply, freely, sometimes on one side, sometimes on both sides, but he had never had a satisfactory result. What the results were in women he was not competent to say, but in men he did not think cystotomy was a wise procedure. It was an evil. He considered well before he cut for a stone in the bladder. He would crush it, reduce it to powder, and get rid of it. The older he became, the less he was inclined to cut anything. He was cutting fewer prostates now than he ever did before. It seemed to him Dr. Cronyn had answered the secretary.

A NEW METHOD OF SURGICAL TREATMENT FOR CERTAIN FORMS OF RETRO-DISPLACEMENT OF THE UTERUS WITH ADHESIONS.

By A. Palmer Dudley, M. D., of New York County.

October 22, 1890.

The treatment of malpositions of the uterus has been one of the most tedious and troublesome problems with which the profession has had to deal, and the ingenuity of those engaged in the special practice of gynaecology has been taxed to the utmost in endeavours to devise some method of successfully overcoming these conditions without resorting to dangerous surgical means. Many and varied have been the methods, both medical and mechanical, that have from time to time occupied a prominent place in our text-books and journals, and been eagerly grasped by physicians anxious to find some means of relieving their suffering patients from this most pernicious of local difficulties.

Until within the past ten years, the accepted, and, I may say, only method of treatment for any and all cases was mechanical, by some form of vaginal support; and the surgical methods of treatment for the relief of complicated displacements that have since been devised, as a direct outcome of our advanced knowledge of abdominal surgery, would at that time have been considered impossible.

The credit for one of the greatest boons ever given to suffering humanity has been accorded to Mr. Tait, who, by his bold and successful invasion of the abdominal cavity, opened the eyes of the profession to the fact that what had long been considered an extra-peritoneal pathological condition (a cellulitis), and treated with hot water injections, iodine, and

glycerine packs, was really not such, but an intra-peritoneal disease, in many cases of a very grave nature. This knowledge opened up a new field for investigation, physiological, pathological, and, I must say, to a certain extent experimental. From these combined investigations we are to-day in possession of certain facts respecting malpositions of the uterus which otherwise would have defied our skill, and we should yet be attempting to correct them with the sound, pessaries, tampons, etc., and still wondering why Dame Nature should rebel in such a vigourous manner occasionally.

Whether the result of accident, violence, or puerperal changes, we know that the uterus cannot long remain in a malposition without creating marked disturbance in the blood circulation of the pelvis, especially that of the venous system. The veins of the broad ligaments, which have no lateral support, are twisted and made tortuous by the downward displacement of the uterus, passive congestion at once supervenes, the veins are put upon the stretch and weakened. A little extra abuse is bestowed upon the uterus by a forced abortion, the careless use of the sound, exposure to cold, or violent sexual intercourse, and the passive congestion advances a step to the first stage of inflammation; nature attempts to relieve the pressure by osmosis of serum and lymph into the peritoneum, and the malposed uterus is soon firmly fixed in its abnormal position by bands of adhesion. It is not an uncommon thing for the laparotomist to see such displaced uteri, tubes, and ovaries covered over, as with a veil, by successive layers of organised lymph, that will offer marked resistance to our efforts to break them up. It has been claimed by the advocates of mechanical treatment, that packs, pessaries, massage, etc., will be all-sufficient for these conditions. It may possibly be due to my want of diagnostic ability and manipulative skill in the management of such cases, but, certain it is, my experience in the management of long-standing cases of retro-displacement of the uterus, accompanied with a history of frequent attacks of pelvic pain and tenderness, will not allow me to concur in the above opinion,

for I have found many cases where attempts to restore such uteri have only been attended with harm.

There is abundant clinical evidence to show, that of all the various derangements of function which we meet with in the treatment of diseases of the uterus, by far the greater proportion are traceable to the existence of some form of displacement, or to the secondary effects of those conditions. It is not my purpose to attempt to deal with simple displacements of the uterus, that have been of short duration and unattended with any form of peri-uterine inflammation, but to call your attention to complicated displacements of long standing, and the methods of treatment that have lately been resorted to, for the relief of those which have defied the skill of the surgeon to rectify by any and all of the medicinal or mechanical methods at our disposal.

But I wish to exclude from consideration in this paper cases of malposition of the uterus, complicated by such a diseased condition of the uterine appendages that their removal is unavoidable. The operation I am about to describe would be quite unnecessary under such circumstances. All authors agree that, of the various displacements to which the uterus is subject, the backward or retro-displacement is much the most frequently met with, and gives rise to the greatest amount of trouble. Both Mr. Tait and Graily Hewitt emphasise the opinion that it matters little whether it is a retroflexion or a retroversion, the condition is always pathological, and the cardinal rules for treatment laid down by the latter eminent author were, first, to attend to the patient's general health, and secondly, to restore the uterus to its normal shape and position by the use of some form of vaginal pessary.

Many workers in this field of practice have found it impossible always to succeed in carrying out these directions. Pathological changes interposed a barrier above the vaginal vault, and peri-uterine adhesions would strenuously resist the coaxing pressure of a vaginal support, until, wearied with vain efforts in this direction, the surgeon sought a more radical and rapid method of dealing with these perni-

cious cases, by opening the abdomen and treating the condition from above.

One of the first to do this was Koeberle, who, in 1877, made laparotomy for retroflexion of the uterus, removed the healthy ovaries, and fastened their stumps to the abdominal wound. Mueller (see Kelly's article, American Journal of Obstetrics, January, 1887) also made laparotomy upon two cases in 1877, but his operations were not for the relief of retroflexion or retroversion, but prolapse of the uterus, and in these cases he removed the latter, and fastened the vaginal stump to the abdominal wall. Olshausen also was one of the first to make laparotomy for retro-displacement, and reported his cases before the fifty-ninth meeting of the Gynaecological Section of the Naturalists' Society in Berlin (see Kelly's paper before quoted). So much has been written upon this subject during the past three years, that I need not attempt a description of the various methods of operation that have been reported; but I do wish to give a short account of the first case of anterior fixation of the uterus for retroflexion that was performed in this country, so far as I am able to learn. The operator was Dr. T. G. Thomas, who made his first hysterorrhaphy more than ten years ago, and at that time, he supposed the operation was entirely original with himself, although he did not publish his case. The operation, as made at that time, differed from the modern operation in this particular. Adhesions about the uterus were broken up, and the latter brought forward against the abdominal walls; the peritoneum covering it was left intact, and the fixation accomplished in the following manner: The rectus muscle was drawn aside, and a knitting needle passed through the subperitoneal tissue and peritoneum on one side of the abdominal incision, then through the fundus uteri, taking up about one inch of the tissue, but not penetrating deep enough to enter the uterine cavity; then the needle was returned through the peritoneum, and the subperitoneal tissue on the opposite side of the incision; the latter was then closed, and when this had been completed, the needle was drawn tight

and twisted, thus bringing the fundus of the uterus into close contact with the abdominal walls. The presence of the wire was sufficient to excite plastic adhesions between the uterus and the abdominal walls. When sufficient time had elapsed to insure good union, the wire was cut with a pair of wire forceps (or nippers) and withdrawn. Since that time Dr. Thomas has modified his operation by denuding the peritoneum, covering the fundus of the uterus, and fastening the latter by silk sutures brought directly through the abdominal walls. In no case has he cut the sutures short, and allowed them to remain in the abdominal cavity to become encysted; neither does he recommend the latter method. He is a firm believer in the anterior fixation of the uterus by hysterorrhaphy, and in his hands the results have been good in the many operations he has made.

I might quote from the experience of many others in support of the opinion entertained by Dr. Thomas, but time will not permit. For a thorough digest of the subject, I refer you to the excellent paper of Dr. Polk, read before the American Gynaecological Society at Boston in 1889, to be found in the Transactions of that society.[1] Dr. Howard A. Kelly, of Johns Hopkins hospital, was the first to apply the name hysterorrhaphy to this method, and the report of his cases in the American Journal of Obstetrics, in January, 1887, added new impetus to the operation in this country.

Although with the advance in the technique of laparotomy, the operation of hysterorrhaphy has rapidly grown into the good graces of many of the special surgeons, it is not yet the favourite with the profession at large, for it is considered (and not without reason) too hazardous an operation to subject a patient to for the relief of retro-displacement of the uterus. I wish to enroll myself as one of those not yet satisfied with the operation; not that I wish to depreciate, in the least, the good

[1] Dr. Polk then advocated a somewhat similar method to that which I shall describe,—that of freeing the adhesions, lifting the uterus, and, without denuding the peritoneum, fastening the two round ligaments together in front of the uterus by a single stitch. I did not have the pleasure of hearing his paper at that time, and did not know of his having treated his case in this manner until sometime after I made my first operation.

that has been accomplished with it, or that I deem it more dangerous than any other operation which necessitates the opening of the peritoneum, but, for reasons which I shall explain later on, I consider it only changing one pathological condition for another, at some risk to the patient's life. But I admit we do meet with cases, such as prolapse of the uterus accompanied with more or less pathological changes in the appendages, when no other operation will effect a cure, and for those cases it will remain a favourite with many surgeons. Owing to the possible risk of death attending laparotomy for ventral fixation of the uterus, another more conservative, less dangerous, and, for many cases, much more desirable operation has kept pace with the growth of hysterorrhaphy. I refer to Alexander's operation, first made in 1881, for the relief of retro-displacement of the uterus by shortening the round ligaments. His example was soon followed by many operators. To-day it is being performed, but, if I am not misinformed, with much less frequency, and, as a result of the failures that have occasionally attended it, efforts have been directed toward some modification of the operation that would insure universal success. One has lately been devised which I deem well worthy of careful consideration. Dr. Edebohls, of this city, in a paper entitled "A Modified Alexander-Adams Operation," read before the Tenth International Medical Congress, at Berlin, gave the results of his experience with eighteen cases. His method of operation is the same as that of Alexander until the external abdominal ring is exposed; then, instead of attempting to pick up the ligament at that point, he passes a grooved director along the inguinal canal, and, with a knife or scissors, he cuts up the canal its entire length; the round ligament is then picked up with a blunt hook at the internal ring, and gradually drawn forward, carrying the anterior layer of the broad ligament with it; the latter is then gently peeled off the round ligament, and allowed to drop back through the internal ring. By this method the ligament is more easily secured, less liable to be broken, and, with care, there is no reason why the

peritoneum should be opened. The ligaments are then secured by passing the sutures through them in reclosing the canal. So far as I am able to judge, I should consider the modification a good one. As to the increased, or diminished, liability to hernia from cutting up the canal, I am not able to judge.

Respecting some of the dangers which menace the success of this operation, I first quote from Alexander's paper, read before the Ninth International Medical Congress, at Washington, this remark :—" That owing to the disturbance of the inguinal rings and canal, there is, no doubt, a slight tendency to hernia produced by the operation, requiring plenty of rest afterwards, and the wearing of an abdominal belt for some time to prevent this tendency." The former of these, the majority who require the operation cannot avail themselves of. Alexander admits that pelvic adhesions, prolapsed ovaries, and thickened appendages also render the anatomical success of the operation somewhat uncertain, and, in such cases, advises that the Hodge and stem pessary be used while the healing process goes on, and at the same time warns us to be prepared to find the result a therapeutic failure, owing to the dependence of the symptoms upon some other cause, in spite of the most careful local examination. If we couple these words of advice, from the originator of the operation, with the well known fact that forcibly pulling the uterus forward and fastening it there by the round ligaments does not tell us anything respecting the pathological conditions within the pelvis, which caused and maintained the uterus in its malposition, or how much disease the malposition has, directly or indirectly, produced in the appendages, I, for one, am impressed with the idea that this operation is really an experiment each time it is performed, to which is attached the hope that the round ligaments, put in apposition to post-uterine adhesions and changes which have taken place in the uterus itself at the seat of flexion, may be endowed by Dame Nature with sufficient strength to hold out in this fight between two opposing forces, until a victory shall be given in

favour of the operator. If such be true, then the field of Alexander's operation is limited to simple cases of retroflexion and retroversion, unattended by diseased appendages and adhesions in their neighbourhood, and therefore not applicable to the treatment of such cases as I shall report. I am quite sure that I am not alone in this opinion.

From a personal conversation with Dr. Thomas, I learned that he had made Alexander's operation for the relief of retro-displacement of the uterus six times. In four of these cases the result was unsatisfactory, and in two the result was good, although the doctor did not think at the time of the operation that he had secured the ligaments. He prefers hysterorrhaphy to suspension of the uterus by Alexander's operation, the latter of which he believes destined to pass out of the catalogue of gynaecological operations. His reason for such an opinion is based upon a long and careful study of the physiological and pathological appearances of the round ligaments in the many hundreds of cases of laparotomy which it has been his privilege to perform.

Since the operations above mentioned were first adopted, as methods for correcting a displacement of the uterus that would not yield to forms of treatment applied per vaginam, I have maintained the opinion that these methods, when employed, although they correct the malposition, accomplish the work by simply changing one pathological condition for another, the latter of which may be less desirable to the patient than was the condition for which the operation was performed. It does not seem to me that nature intended that the body of the uterus in woman should ever be fastened to any portion of the abdominal walls. It has been my privilege to witness more than five hundred laparotomies, and I have yet to see the case where the uterus was bound to the abdominal walls, unless it was the seat of fibroid development which had lifted it high in the pelvis, and peritonitis had subsequently lighted up about it. The diaphragmatic action of the pelvic floor is one of nature's safeguards against intra-abdominal pressure in breathing, exercise, and, to some

extent, in disease. I contend that, if we fasten the uterus to the abdominal walls, it will interfere to a great extent with the proper action of the muscles of the pelvic floor. It will also imprison the bladder to a marked degree, necessitating its expansion in a lateral rather than an upward direction, thereby bringing into action two opposing forces, one from above, forcing the uterus downward, and another from below, forcing it upward. I am led to believe that the action of these forces, constantly exerted upon the fresh union between the uterus and abdominal wall, will, in time, separate them just as they will produce hernia after laparotomy, unless perfect coäptation and firm union are secured between the cut surfaces of the linea alba.

Many cases have been cited that would tend to contradict this statement. I grant that the uterus may not return to its old position, but if second laparotomy could be made upon such cases, the uterus would be found freed from its original attachments. Such has been my experience with the operation of hysterorrhaphy. I have made ventral fixation by Kelly's method six times. In three of the six, a ligature formed a sinus. I made second laparotomy in two of the cases, and, in place of finding the horns of the uterus fixed to the abdominal walls where I had placed them, I found the uterus freed and separated from the walls by at least two inches, and the intervening space, between the uterus and its old site of attachment, occupied by the intestines glued together and firmly attached to the uterus and abdominal walls, while along the line of the sinus the intestines were perforated, in the first case twice, and in the second in three places. The third case passed out of my hands, and I do not know the result.

My experience may have been particularly unfortunate, but at the time of operation every precaution was taken against infection, and the ligatures I used had been boiled in carbolised water for an hour previous to insertion. It was certainly an experience I did not care to continue, and I determined, if the opportunity presented itself, to attempt

another method of operation, which I thought would not be attended by such unfortunate results as those I have reported in three out of my first six cases of hysterorrhaphy. I now wish to describe the operation I have since made, and report the results obtained in four cases.

Case I. Mrs. S., German, age 25, married five years, two children, one miscarriage, latter two and a half years ago, operated upon at Post Graduate hospital, December 6, 1889. She had been an invalid since the miscarriage; the menses had been profuse, and attended with such pain in the back and sides that she was obliged to remain in bed for three days with each period; cohabitation was painful, and, in fact, the slightest pressure about the uterus gave pain. Her local condition, as revealed by examination, was as follows: Perineum and cervix uteri badly lacerated; the uterus retroflexed to the third degree and bound; endometrium thickened and fungous; ovaries, tubes, and cellular tissue about the uterus very tender. I treated this patient faithfully with iodine applications and glycerine packs three times weekly for six months. At the end of that time I could move the uterus and lift it into a perpendicular position with Emmet's repositor, but I had not succeeded in relieving her pain at the menstrual period, neither had I succeeded in reducing the length of time the flow was on, or the quantity of blood she lost.

Becoming wearied with this method of treatment, I induced her to go into the hospital and have the lacerations repaired. At the time of operation, I curetted the uterus and removed a large quantity of fungosities. The plastic operations were successful, and she left the hospital wearing a Thomas soft-rubber retroversion pessary, the uterus apparently in the first degree of retroflexion. She wore the pessary five weeks, and was obliged to have it removed. I did not attempt the introduction of a uterine stem pessary, for I consider it a dangerous instrument when the uterus is fixed, or when peri-uterine pain is a constant symptom. Tampons were substituted and persevered in for another six months. At the end of a year's time she had not been relieved of her pains, and the menorrhagia still continued.

I then sent her into the hospital again for operation, not telling her what I intended to do, only that I would not sacrifice her tubes and ovaries if it were possible to save them. I prepared her for a laparotomy, put her under an anaesthetic, opened the abdomen, broke up the adhesions about the uterus, tubes, and ovaries (which proved to be quite extensive, and string-band in shape), and then made the following operation: Taking the left tube and ovary first, I drew them up through the abdominal incision, saw that the fimbriated extremity was open; then

taking a piece of No. 27 silver wire, slightly probed at one end, I gently passed it through the entire length of the tube into the uterus, demonstrating to those witnessing the operation that the tube was pervious. The ovary contained several cysts, varying in size from a pea to an almond seed; these I tapped with a spear-pointed needle, by passing the needle directly through the ovary, squeezed the water out, and allowed the sacs to fill with fresh blood. The tube and ovary were then dropped back, and the right one brought up and treated in the same manner. An assistant was then asked to place two fingers within the vagina, and lift the uterus as high as possible in the pelvis. Aided in this manner, I was able to bring the uterus up close to the abdominal incision. Then with a pair of delicate, sharp scissors I denuded the peritoneum from the anterior wall of the uterus in an oval shape, taking care not to go too near the bladder. Then each round ligament was brought up, and a

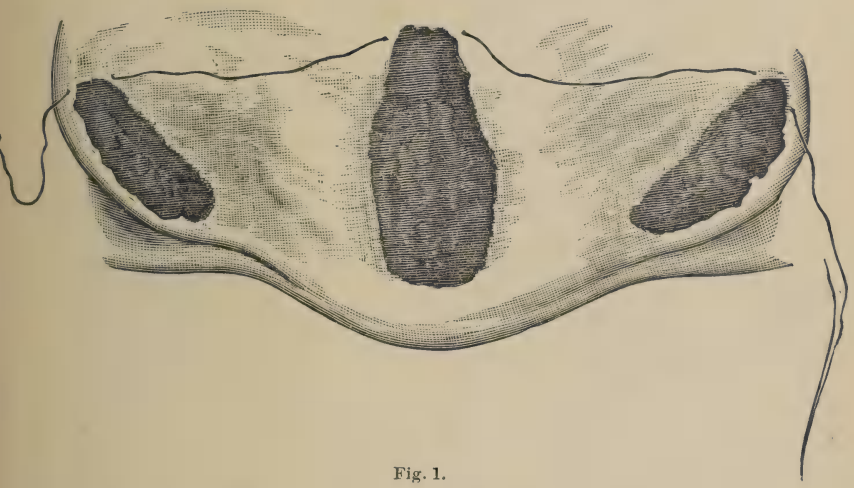


Fig. 1.

portion of the peritoneal covering upon the inner side of it denuded to correspond with that upon the uterus (see Fig. 1). With catgut sutures, used in continuous stitch, I sewed the three denuded surfaces together, as seen in Fig. 2. In adjusting the sutures, I took care to pass them deep enough in the uterine tissue to secure against their cutting out before union between the parts had taken place. The uterus was then allowed to drop back into the pelvis, and the traction upon the round ligaments at once drew the organ into a position of anteversion, and the sutured surface lay in apposition to the posterior surface of the bladder. I did not introduce a pessary, preferring to allow the operation to rest upon its own merits.

The objects gained by this method of operating I consider to be threefold.

1. I shortened the round ligaments, without sacrificing any of them, sufficiently to hold the uterus in a position anterior to the perpendicular line of the body, by simply changing their point of uterine attachment, and including with them the anterior fold of the broad ligament, across which the round ligament passes to reach the inguinal canal.

2. Denuding and firmly fastening the round ligaments to the anterior surface of the uterus thickened and gave extra support to the latter.

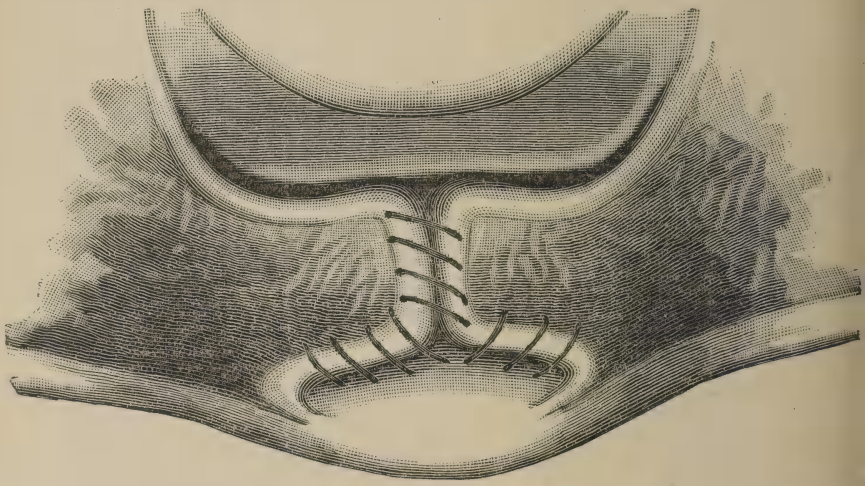


Fig. 2.

3. By this procedure I succeeded in maintaining the uterus in a normal position without fastening any portion of it to the anterior abdominal wall, a position which I think nature never intended it should occupy.

I have watched this patient with interest since the operation (December 6, 1889), and have made repeated examinations. The results which I am able to report to-day are, that whereas before the operation she was obliged to remain in bed three days with her menses, she does not at present experience the slightest pain or discomfort. Constipation

has been relieved; coition not painful; the uterus is in proper position, and no tenderness exists about the appendages. I have reported this case somewhat at length from the fact that the retroflexion was so pernicious, and the ovaries the seat of such marked cystic degeneration, that after a lapse of ten months it would be interesting to know that the reflex symptoms at present are *nil*.

Case II. Mrs. L., age 27, married two years, operated upon April 24, 1890. She consulted me in November, 1887, about a year before she married. At that time she was suffering such pain with the menstrual periods that it incapacitated her for any work. Upon making physical examination, I found the uterus completely retroflexed and quite immovable. The left ovary was also prolapsed, considerably enlarged, and exquisitely tender. She at once entered the hospital, and I commenced treatment for correcting the displacement. She remained in hospital fourteen weeks. During this time I succeeded in getting the uterus into fairly good position, and introduced a Thomas retroversion pessary. She wore the pessary about six months. While wearing it she was quite comfortable, except that during the menstrual period her pain was just as great. She went West, and during the next year was under the care of several physicians. By one she had the uterus reposited with a curved steel instrument introduced into the rectum, and made to lift the uterus by shoving the rectum forward. She returned to me after a lapse of two years in about the same condition as when I saw her first.

It is needless for me to narrate the treatment I subjected her to during another half year. I will simply say that it failed, and on April 24 last I made the operation for fixation that I have described, assisted by Dr. Foster of Maine and Dr. Aspell, of this city, to the latter of whom I am indebted for the drawings made at that time. With this case I introduced a Thomas soft-rubber pessary, and allowed her to wear it some time. Examination made on October 6 showed the result a perfect one; the uterus in good position. All reflex symptoms have disappeared. She has gained much in weight, and has returned West, as she says, perfectly well. In this case the left ovary was nearly twice its normal size, the increase being due to cystic formations, several of which I punctured and drained. No inflammatory action in or about the ovary followed this treatment, for she never had pain in the side after operation.

Case III. Mrs. L., age 29, widow four years, one child five years old, no miscarriages. Has suffered pain with the menstrual periods since maturity, the pain always located in the back and left ovary. She had been an invalid since the birth of her child, and obliged to remain in bed with each period. Upon examination the uterus was found to be

completely retroflexed, the left ovary was prolapsed with it, and both were quite firmly bound. She was obliged to support herself and child, consequently could not bear the expense of treatment, or even come to my office for it for any length of time. I prevailed upon her to try the boro-glyceride tampons for a time, and while she could wear them she got some relief. The uterus could not be anteverted or even lifted to the perpendicular position, and efforts to adjust a soft pessary only resulted in increased pain and soreness. She was anxious to accept any operation that would give her relief, rather than continue with her suffering. I advised having the uterus freed from its position and fixed anteriorly.

May 25, 1890, I made the operation, assisted by Dr. Ogden of this city, and Dr. Keith from the Woman's hospital. The left ovary was double the normal size, and more than a drachm of fluid was taken from it. In this case, after the operation, I introduced a Thomas soft-rubber pessary, and allowed her to wear it through the summer. Examination on October 16 showed the uterus to be in proper position, the ovaries neither enlarged, prolapsed, or even tender. She still has some pain with the menses, but remarks that it is so slight she does not mind it; her periods are regular, and last only four days; her backache is a thing of the past. She has gained much in flesh, and reports herself as feeling perfectly well.

Case IV. Mrs. S., age 35, married twelve years. She suffered severe pain with the menses from maturity. At the age of nineteen she was examined, and told that she had a displacement of the uterus backwards. She did not have treatment for it at that time. Her first child was a premature delivery at eight months. This was followed by a miscarriage and second living child before she had been married quite two years. The retro-displacement continued after the birth of the children.

About eight years ago she went into the Burlington hospital for local treatment, and remained there eight months. She left the hospital with a pessary supporting the uterus, which she continued to wear for five years. It gave her comfort, but did not cure her. Two years ago she returned to the hospital, and had a laceration of the cervix repaired. She remained in the hospital the second time five months; tried to wear the pessary, but could not; and has been suffering ever since with pain in the back and sides. I saw her in consultation with Dr. Woodman in July last; found her in bed. The uterus was retroverted and firmly fixed, ovaries very tender. Giving such a history as I have narrated, I advised her to have the ovaries removed, and the uterus fastened forward.

She entered the Post-Graduate hospital, and on September 20 I made laparotomy. The uterus and ovaries were quite firmly adhered to the pelvic cul-de-sac. The left ovary contained quite a number of cysts, which were drained, reducing the size of the ovary materially. I fastened the uterus forward in the manner I have described, but did not remove the ovaries. With this case it is too early to tell what benefit will be

obtained from the operation, for time must elapse before the results from changing the position of the uterus and ovaries can be appreciated by the patient. This patient is now menstruating, and the pain and reflex symptoms attending are much less pronounced than they were with the last period. In this case the displacement had existed for sixteen years, and the changes in the structure of the uterus at the seat of flexion were quite marked. If the displacement returns in either of the four cases, it will be in this one.

It has been said that the union obtained between the anterior layer of the broad ligaments in this manner would give way, and allow the uterus to retro-displace again. I do not consider my experience with the operation sufficient for me to declare that it will not, but, in three of the four cases reported, more than six months have elapsed since the operation, and the uterus in each case is well forward. The object to be attained in all of these operations for the relief of retro-displacement is to maintain the body of the uterus in a position anterior to the perpendicular line of the body, until the causes which produced and kept up the displacement shall have been relieved, and the uterus allowed time to return to a normal condition. If we can secure this result without imprisoning the uterus to the abdominal walls, or interfering with the proper function of the bladder, I consider it an advance in abdominal surgery.

This method which I have adopted with my last four cases, and which, for want of a better name, has been termed uterine desmopycnosis, is applicable to only a certain class of cases. It is not called for in cases of retro-displacement of the uterus unaccompanied by adhesions or peri-uterine disease. It is unnecessary for cases where the tubes and ovaries are down with the uterus and so diseased that their removal is obligatory, but for cases where we find the tubes unoccluded, and the ovary, although somewhat enlarged by cystic degeneration, not hopelessly diseased, I think this operation presents the following advantages over either hysterorrhaphy or Alexander's operation:

1. It corrects the displacement by utilising the natural supports of the uterus without sacrificing any of them.

2. The proper diaphragmatic action of the pelvic floor is not interfered with.

3. The bladder is not imprisoned in the least, and its proper action is undisturbed.

4. There is no chance for intestinal adhesions about the line of sutures, for the latter lie in apposition to the posterior surface of the bladder, and adhesion taking place at this point simply elongates the utero-vesical junction.

5. In case of impregnation, the uterus is free to lift in the abdominal cavity naturally. (This leads me to remark that the first patient operated upon impregnated three months afterwards, and, fearing that it would interfere with the success of her operation, injected the uterus with hot water, and arrested the conception when she was about six weeks along.)

6. The use of catgut as a suture material in this operation does away with the dangers of the formation of sinuses by the ligature, such as I have mentioned as having occurred in the past.

DISCUSSION.

Dr. Thomas H. Manley, of New York county, said that the method described by Dr. Dudley, together with the other operations mentioned in his paper, were similar to the operations for the radical cure of hernia, or for the cure of prolapse of the rectum in inveterate cases, and the same principles must therefore guide us in the management of these different classes of cases. Speaking of the technique of the operation, he objected to the opening of the general cavity of the peritoneum on account of its attendant dangers. It must be remembered, however, that women are very tolerant of such manipulations, and, as the incision passes through the linea alba, owing to the partial separation of the recti muscles in women who have borne a number of children, very little muscular tissue is divided, and hence the haemorrhage is but slight. One disadvantage of such an operation was the liability to the occurrence of hernia; but it must be remembered that in females whose respiration is almost wholly thoracic, this tendency is not so great as among males. Notwithstanding these objections, this operation, as compared with its predecessors, seemed to have a brilliant future.

Dr. Dudley, in closing the discussion, said that one of the principal reasons for devising this method was to avoid the removal of the ovaries—

an operation which was becoming far too frequent. It was also intended to get rid of the danger of intestinal adhesions and sinuses, and of the pelvic pains which follow laparotomy. In the future he would not sacrifice a woman's tubes and ovaries when he found them no larger than an egg, but would tap the tumor and evacuate the water, and, if possible, destroy the cyst sac. He did not think such a procedure was at all dangerous. If the cyst wall were scratched sufficiently, and allowed to fill with fresh blood, an artificial corpus luteum would be formed, and the cyst wall would be destroyed. The fact that these women whose histories had been narrated had been so benefited by the operation in the course of six months that the ovaries had diminished to half their former size and the menstrual pain had almost disappeared, made him think the operation was worthy the careful consideration of the profession.

THE DEATH PENALTY.

DOES THE GARROTE OR HANGING EVER PRODUCE INSTANTANEOUS UNCONSCIOUSNESS?

By George E. Fell, M. D., of Erie County.

October 23, 1890.

It is generally accepted without question, that death produced by the garrote and by hanging, when properly applied, is painless; that unconsciousness immediately supervenes. In death by garroting, direct puncture of the cord (medulla oblongata) is desired; and in hanging, by destruction of this important centre by the displacement of the odontoid process of the axis upon the cord in breaking the neck, the same result is said to be obtained. With destruction of the respiratory centre of the medulla we have instantaneous interference with respiration, and, it is supposed, instant death or unconsciousness. Physiologists are aware that injury of the cord or brain, approximately above or below the respiratory centre, produces excruciating torture. Evidences of this result are demonstrated in missing this centre when killing animals, not deeply anaesthetised, following vivisection experiments.

In the use of the garrote in executing criminals, I have reason to believe similar conditions obtain, from the report of an execution within the present year in Spain, where the puncturing point missed its mark, with great torture to the culprit and heart-rending experience to the witnesses of the execution. In this paper I do not wish to refer specially to the horrible tortures culprits are often made to endure when sentenced to death by hanging and the best results of the method are not obtained. They are too numerous and easy of reference to need repetition in this connection. Where the

neck is not broken, we have strong evidence that the sudden pull of the noose is often not sufficient to produce unconsciousness, or even to interfere with the psychical functions. An instance of this kind was related by Dr. Spitzka, at Auburn, N. Y., following the execution of William Kemmler by electricity, when all present admitted the great superiority of the latter method over those now in vogue. The case was as follows: A negro was hung in New York (or Brooklyn), and a few minutes after the drop, with his head pulled to one side by the knot, he uttered in a distinctly audible but whispering tone the words, "Oh, this is too much!" This was clear evidence that the shock from the fall neither produced unconsciousness nor interfered with the cerebral functions in this instance; and in the many instances where there are writhing movements, pulling up of the limbs, clutching at the throat, etc., in hanging, it is absurd to claim that sensibility is at once abolished,—that the movements are only reflex.

We will now proceed further, and question the cases which have apparently exemplified the thoroughness of these methods, and see if it cannot honestly be questioned, with the evidences we have before us, whether unconsciousness is produced or activity of the cerebral lobes of the brain interfered with, even with the medulla paralysed by the shock or other event of the method used.

Observations I have made in several cases of opium narcosis under forced respiration afford me the argument which prompted me to propound the question heading this article, and its consideration in view of the electro-execution discussion makes this a favourable and appropriate time to advance it. In the cases of forced respiration referred to, the following conditions have been observed a number of times. Total insensibility existed in which no active therapeutic agent, except oxygen placed in the lungs by forced respiration, appeared to have the least effect. The opium, taken usually in large doses either as laudanum or morphia, has produced such complete paralysis of the respiratory centre that the

patient could not be made to take a voluntary respiration. However, by keeping up forced respiration through a tracheotomy tube, the cerebral lobes gradually came into function, the patients becoming conscious of conditions surrounding them so as to note minute details of actions about them, but the respiratory centre would not respond to the influence of the oxygenated circulation; consequently, with the medulla respiratory centre paralysed we had active function of the cerebrum. As is well known, the poison exerts its influence upon the respiratory centre and destroys its function, presenting a condition very similar in results to that produced by hanging or by garroting when effectually performed, but probably less in degree, as the many other functional centres in the medulla oblongata would probably be influenced also by the latter methods. But, as in hanging the circulation or heart's action continues for some eight to fifteen minutes in most cases, we have the strong presumption, on comparing the conditions mentioned in forced respiration with those of hanging, that the cerebral lobes may be in function, and consciousness may exist for a time even when hanging or garroting is successfully applied to the execution of criminals. Only in cases where the heart can be made instantly to cease its action *and the brain be effectually paralysed*, as in electro-execution, can we be certain of instant death—of death without an intervening period of consciousness—providing, of course, that the cerebral brain substance is not instantly destroyed by the method used.

RECENT EXPERIENCE IN THE TREATMENT OF EXOPHTHALMIC GOITRE.

By E. D. Ferguson, M. D., of Rensselaer County.

October 23, 1890.

Exophthalmic goitre is not a common disease, and yet not so rare as to render it a curiosity. Doubtless the large majority of physicians have had more or less experience in its treatment. If that experience has corresponded with my own, it would have been marked until a recent time by eminently unsatisfactory results, at least in the majority of cases. It is true that occasionally cases would be met which did not make rapid progress downward,—cases in which the disease would remain stationary, or even an improvement take place; but until about two years ago it had been the conviction of the writer that but little encouragement could be given to the victims of this disease, while the idea of a cure could rarely be entertained. The variety of treatment suggested, and the contradictory statements of those treating on its therapeutics, justified the conclusion that either the medication was eminently unsatisfactory, or a variety of morbid conditions requiring differing treatment had come to be classed as exophthalmic goitre, and the therapeutical, as well as the nosological, differentiation remained to be made.

Though the disease is one with sufficiently well defined characteristics to allow of ready recognition, still errors of diagnosis may and doubtless do occur. The fact that enlargement of the thyroid body is not peculiar to this disease, and that a frequent pulse is attendant on a multitude of morbid conditions, furnishes us two thirds of the diagnostic points as of common occurrence, and it is not unreasonable

to suppose that, occasionally, prominence of the eyes may be added from causes not the same as the conditions determining the development of exophthalmic goitre. The conclusion that the condition is not at any rate a pathological unit has been strengthened, in the judgment of the writer, from the results of the use of digitalis, for in every instance in which he felt confident of the diagnosis, that drug not only failed to afford relief, but was apparently productive of injury. In this he found himself in accord with many to whose writings he has had access; and yet, occasionally, benefit or even a cure would be ascribed to digitalis.

Prior to 1888, his experience had been one of nearly uniform failure to relieve, or benefit, the patients suffering from this disease, at least, so far as direct results from the agents prescribed could be fairly assumed; and this statement is made in connection with the fact that all therapeutical measures, including electricity, which had been recommended as useful, had been given thorough and persistent trial.

Being so thoroughly convinced of the inefficiency of our resources, it was with reluctance that the care of a pronounced case of the disease was undertaken in the autumn of 1887, and the husband of the patient was quite plainly given to understand that the result would probably be a failure to cure, or even stay, the progress of the malady.

The patient was a woman about 55 years of age, with notable exophthalmos, enlargement of the thyroid body, and a pulse from 110 to 120. She faithfully followed the treatment advised, which included tonics, aconite, belladonna, electricity in the form of the so called central galvanisation, digitalis, etc., but after several months she was so much worse as to be confined to her bed with a pulse rate of from 120 to 150, and a discomfort in the cardiac region that prevented sufficient sleep, and at times seemed to reach the agony of an angina pectoris.

In deliberating on the course to be pursued in this case, it occurred to the writer that the rapid, forcible, and occasionally tumultous action of the heart, as well as the changes

found in that organ in cases dead from the malady, would favour the idea of an increase in the resistance in the systemic arteries as one of the events of the disease, and as digitalis was believed to increase arterial tension, it was concluded that that fact explained its failure to quiet the excited heart action.

The then new therapeutical agent, strophanthus, was said to lessen the resistance in the systemic circulation, and with that object in view its administration was begun. The patient at that time was in a pitiable condition. She was unable to walk; in fact, every change of position brought on exceedingly uncomfortable, generally quite painful, sensations in the pericardia, and emaciation had advanced to an extreme degree, thereby emphasising the exophthalmos. A measure of relief was manifest soon after commencing the use of strophanthus, which was some three or four months after the case was taken in charge.

As soon as a positive degree of improvement in the rate and quality of the pulse and the general condition of the patient was manifest, all treatment aside from the administration of iron, arsenic, and strophanthus was omitted, and the improvement continued, till in about six months the pulse was reduced to 80, the patient was in every way comfortable, and able to take a fair amount of exercise without inconvenience.

By one of those curious coincidences of the observation, within a short interval of time, of a number of rather rare cases of disease, it fell to the writer's lot to see, within a few months, eight cases of the disease under consideration, and thereby quite an amount of clinical material was placed at his disposal.

One of the early cases was seen in consultation, and was the first instance of the disease ever seen by the attending physician. The patient was a woman, 41 years of age, with a pulse rate of 150, and with the usual dyspnoea. She was at once put on the strophanthus treatment, and the improvement was rapid. A few weeks after this case was seen, and as another curious coincidence, the same physician brought

to my office another case in a man 41 years of age. In this case the pulse was 130, and the dyspnoea on exercise was troublesome, but not as extreme as in the preceding case. He was placed on the same treatment, and improvement was prompt. He continued the medicine for about ten months, except a few days, when he took spartein, but returned to the strophanthus under my advice. I examined him recently, and found him in good health, and with a pulse rate of 76 per minute.

It is not necessary for me to give details of all the cases, it being sufficient to state that the administration of strophanthus afforded relief, and allowed a return to ordinary occupations in every instance excepting one, and in that case there was associated pulmonary disease, probably of a tuberculous character, which implied an unfavourable termination aside from the exophthalmic goitre. In this instance there was no improvement in any of the symptoms, the case passed from my observation, and doubtless progressed to a fatal issue, though I have been unable to trace the history. Several of the cases are still under observation, and I consider them still under treatment, for though they have improved so as to consider themselves in some instances as cured, in my own judgment the treatment should be continued with more or less regularity for a longer period of time. I have also excluded from my report some cases recently seen, and some cases seen only once, and that failed to keep me advised of their progress.

In no instance has either the exophthalmos or the goitre been entirely removed; and so far as the goitre is concerned, I should not expect its removal, for, where the enlargement has existed for some time, it becomes of so dense or fibrous a consistence as to exclude the idea of its complete removal. So far as I could judge, however, there was a notable degree of improvement both in the exophthalmos and in the enlargement of the thyroid body, but it is manifestly difficult, or even impossible, to express in mathematical terms the changes in these features of the disease, as can be done in the rate of

the pulse. In the case of the heart, however, and, in particular, in the instance of the patient first cited, I was satisfied that not only were the rate and rhythm of the contractions favourably influenced, but there undoubtedly existed a dilatation of the left ventricle, which improved so as to leave no physical or symptomatic evidence of cardiac lesion.

Though recent pathological considerations tend to place exophthalmic goitre in the category of the neuroses, and to find the locus of its origin in that specially vital region—that neuropathic switchboard—the vicinity of the floor of the fourth ventricle, still the evidence is not such as to give us any clew concerning its etiology or treatment, aside from what we can gather from clinical observations; and consequently there is no explanation to offer as to the method by which strophanthus affords relief, aside from the idea that first suggested its use, and that was to relieve an apparently overtaxed heart through the lessening of the resistance in the systemic circulation, which was claimed to be its action. This explanation may not be in full harmony with the results of physiological experiments, and particularly with what is known as Marey's law, that there is an inverse ratio between the arterial or general blood pressure and the rate of the pulse, the heart apparently being hastened in its rapidity when resistance is diminished, as would be the case in an ordinary piece of machinery.

While accepting in a general way the conclusions from physiological experiments, there are some claims made relative to the dynamics of the vascular system that fail to gain my assent, or, at least, to stand as explanations; and the disease under consideration is an instance, for in it the action of the heart more nearly resembles that which attends and follows violent physical exercise than any other condition with which it can be compared; and, assuredly, we will hardly concede that the rapid, violent, and excited action of the heart in those who are climbing mountains is due to diminished arterial tone. Whether or not we are to consider arterial tone and systemic resistance as occasionally convertible terms is also

a problem, though an intimate relationship is manifest. Incidentally, it may be noted, that the mystery and perplexity of some points, in the physics of the circulation of the blood, reaches a climax in the claim made that blood-vessels may *actively dilate*, and thereby practically solve the problem of lifting oneself by the boot-straps.

If we grant the power of forcible dilation on the part of the blood-vessels, it is not difficult to understand that the range of change in vascular resistance from the tonic contraction of arteries to their active dilation, and consequent virtual suction effect, would be sufficient seriously to disturb the heart. A corresponding variation of resistance would be disastrous in a steam engine, were it not for the "governor." But we are told the heart has such a "governor," and that it is located in the vicinity of that part of the medulla occupied by the restiform bodies. We will consent that physiological experiments seem to justify such a claim, though pathological observations have not so far contributed any positive evidence, and a careful sifting of the evidence will not justify positive conclusions—nothing more than the probability that in the medulla there is a centre having control over the circulation of the blood, and that strophanthus may in some way "govern" this.

Aside from any theoretical considerations as to the way in which the agent acts, the fact remains that benefit was apparently the direct result of its use—a benefit so notable as almost to justify the claim of a cure in some of the cases; but it would be wise to stop short of such a claim, for it was observed, in one of the most favourable instances, that while the result in a general way was eminently satisfactory, still any mental anxiety or disquietude was sufficient to raise the pulse rate from about 80 to over 100 for a period of several days.

The period of time during which the agent has been on trial is altogether too brief to justify too glowing claims for permanency of results, and the writer cannot divest himself of the fear that the improvement will not, in the majority of cases, remain permanently.

The only claim that is justifiable at present is, that strophanthus has proved more notably beneficial in the treatment of exophthalmic goitre than any other drug or remedial measure.

A few words relative to the agent itself, or, rather, its preparations and dosage, may be useful. The only preparation used by the writer was the tincture, but it was observed that a notable difference existed in the taste of different specimens. This difference related mainly to the bitterness, and upon investigation was found to be ascribed, by some pharmacists, to the length of time the drug was allowed to remain in the menstruum, and, by others, to the improper predominance of pods over the seeds in preparing the infusion. It was impossible to conclude just how the excessive bitterness was induced, but it was apparently due to an oil or oleo-resin, which would render the tincture opaque on the addition of water. Several ounces of this oily material were shown to the writer by one pharmacist as having been separated in the process of manufacturing the tincture.

In some instances, the presence of a large amount of this bitter principle seemed to be productive of disturbance of the stomach, which was avoided by using other samples with less bitterness; and, on the other hand, some instances were noted where the bitterness was not objectionable, though, on the whole, the impression remained that those specimens that were notably bitter did not act as favourably.

The administration was by the conventional method of three doses daily—one at each meal—the initial dose being from 8 to 10 drops, which was increased, if necessary to reduce the frequency of the pulse, to 15, 20, or even 25 drops, and, in fact, relief was not obtained in some cases until the large doses mentioned had been used. In no instance did unpleasant results appear to be due to the drug, aside from some nausea, which was ascribed to the individual preparation used, and apparently due to an excess of the bitter principle.

There have been but few, and those brief, notices of the

use of strophanthus in Graves's or Basedow's disease, and its use is not advised in any of the recent "year books" consulted by the writer. It had been used by him for over a year in the treatment of the disease under consideration before he saw any notice in medical literature of its prescription by others. Within a year, he has seen in the medical journals a few notices of its use, and the reports have been quite uniformly favourable.

Whether its apparent utility will bear the test of time and larger experience is still problematic: at present, it seems to be our most valuable therapeutic resource in exophthalmic goitre.

DISCUSSION.

Dr. John Cronyn, of Erie county, said that he was delighted at the way in which the author had defined the position of digitalis in exophthalmic goitre. This drug had one place, and only one, *i. e.*, where the heart is weak and irregular, associated with a valvular lesion. He had also tried strophanthus for the condition described in the paper. The pathology of this condition was in very great doubt, and cases very closely resembling each other behaved very differently under the same method of medication. In a recent discussion in the French Academy, one gentleman asserted that strophanthin was the only valuable preparation, and that strophanthus was of no use. The members were apparently about equally divided concerning the value of the drug.

Dr. Alfred L. Carroll, of New York county, said that he had but little to add to the paper, which was quite exhaustive, but he would like to emphasise the statements of the author in regard to the widely different action of the various preparations of strophanthus. He had been one of the first in this country to make use of strophanthus after the publication of Fraser's first paper, and in the first case in which it was employed, the result of its administration was absolutely negative, until a freshly imported tincture had been obtained from a reliable apothecary. After the administration of a very few doses of this preparation, the sphygmographic tracing changed from a wavy line to a nearly normal pulse trace. Such great variations in the preparations had given rise to much unjust depreciation of the real merits of the drug.

ADDRESS ON SURGERY.

THE LIGATURE OF ARTERIES.

By Stephen Smith, M. D., of New York County.

October 23, 1890.

The opening years of the present century were notable in the history of surgery for the extraordinary attention given to the ligature of arteries. The fame of Hunter's successful application of a ligature to the femoral artery for popliteal aneurism had led to renewed inquiry as to the nature of the changes which occur at the seat of ligation, and as to the applicability of this operation to other arteries. The field of practice which was now opened was new and most inviting, especially to the younger class of surgeons. The treatment of aneurisms had hitherto proved most unsatisfactory, but now the way to success had apparently been definitely pointed out, and many were ready to test the value of the new method. Far greater interest, however, was manifested in the operations in England than in France, or other continental countries. American students were then more frequently educated at the British schools, and the enthusiasm which pervaded the profession at these centres was imparted to them. As a consequence, both British and American surgeons have won the greater honours in this department of surgical practice.

It is the purpose of this paper to notice more especially the contributions of American surgeons to the improvement and development of the ligation of arteries.

The history of the ligation of arteries for the cure of aneurisms may be divided into three periods. The first period

came down to 1785; the second extended from 1785 to 1868; and in the third we are living at present. The recognised operation in the first period is called the old method; that of the second period the new method; that of the third, or present period, the antiseptic method.

The old method dates back to the Greek writers. The principle on which it was based was the obliteration of the tumor by freely opening the sac and promoting suppuration. The feature of the operation which excited most interest among surgeons, and led to improvements, was the method of arresting haemorrhage. At first the open artery was plugged after the sac was incised, pledgets containing caustic being sometimes employed. Subsequently, the open artery was ligated at the bottom of the sac, and then the sac was filled with lint or other materials, and allowed to suppurate. A still further improvement was the ligation of the vessel, external but close to the tumor, and the subsequent incision of the sac. Again two ligatures were applied, one above and the other below the tumor. But whatever method was employed to prevent haemorrhage, the operation terminated by opening the sac. This operation is described by observers of that period as being most disastrous in results. The suffering of patients was the most severe, and the mortality was enormous.

In 1710 an operation was performed which was a radical departure from the old method. For the first time, apparently, the aneurismal tumor was not laid open after ligature of the artery. It was the ligation of the brachial artery by Anel. The patient had an aneurism at the bend of the elbow following venesection, and Anel applied the ligature as near to the tumor as possible. In this respect the operation did not differ from that practised at the time. But he did not touch the aneurism, as was the custom, and was gratified to see the tumor gradually diminish, and finally disappear. This operation did not, however, attract attention for three quarters of a century, and the old method continued to be practised until 1785. It is not difficult to discover, however, in the surgical literature of that time, a growing discontent with the

operation, and courses of inquiry, which must in the minds of the leading thinkers and observers ripen into radical changes in practice. Pott in England and Deschamps in France, discarded the operation, and preferred amputation of the limb in which the aneurism was located. Cases of the spontaneous cure of aneurism were studied in London, and, in one instance, John Hunter is reported to have been in consultation in such a case.

The first authentic departure from the old method after Anel's operation occurred in June, 1785, when Desault repeated his operation for a popliteal aneurism, and with success. It has been claimed by French authors that this operation inaugurated the new method, but according to Sabatier the ligature was applied at the upper part of the tumor, and the operator had to separate the nerve from the artery. These facts prove conclusively that the operator applied the ligature close to the tumor, as did Anel. These operations were certainly important steps in advance, and demonstrated all the possibilities of a century of subsequent improvements. They proved conclusively that the ligature of the artery on the proximal side of the tumor might result in obliteration of the aneurism without opening the sac. Anel's remarks upon his case show that he based the operation upon physiological conclusions, and that it was not an accidental nor an empirical procedure. He states that, after ligating the artery, he did not touch the sac, "not doubting but that the blood contained in it would be dissipated, being at liberty to pass on towards the extremity; that the sac, being once empty, would not fill again; that the layers of membrane that formed it would not fail to collapse; and that thus the tumor would disappear—all of which happened as I thought." The defect in this operation was the application of the ligature so near the aneurism that it was liable to be placed on a diseased portion of the artery, and hence lead to a fatal result from secondary haemorrhage. Hunter recognised this fact, as the accident had happened several times to him, as appears from Home's account of his operation, and sought to remedy the

defect by applying the ligature to the artery at a point sufficiently distant from the aneurism, on the proximal side, to insure healthy tissue.

Home, who reported the case, remarks as follows:

> The common method of operating in cases of popliteal aneurism, having in many instances proved unsuccessful, the operation itself has been condemned by some of our most eminent surgeons. If we consider the cases in which it has been performed, and where the patients have died, we shall probably find that in all of them the artery had been diseased at the part enclosed by the ligature, and had either sloughed off, or had been cut through where it was tied, so that the sides of the artery, though brought together, had not remained a sufficient length of time in that situation to unite by the first intention, and the patients lost their lives from the consequent haemorrhage.

These statements of Home undoubtedly embody the reflections of Hunter upon the causes of the fatal issue of the old method as modified by Anel, and as recently practised successfully by Desault.

It naturally followed that Hunter should propose to ligate the artery at a higher point, and the reasoning, which led to his now famous operation, is thus given by Home:

> The femoral and popliteal arteries are portions of the same trunk, presenting themselves on different sides of the thigh, and are readily come at in either situation; but where the artery is passing from the one side to the other, it is more buried in the surrounding parts, and cannot be exposed without some difficulty. In performing the operation for the popliteal aneurism, especially when the tumor is large, the ligature is commonly applied on the artery at that part where it emerges from the muscles. This will be too limited a space should it prove diseased for some way higher up; and, if the artery should afterwards give way from any of the causes above mentioned, there will not be a sufficient length of vessel remaining to allow of its being again secured in the ham. To follow the artery up through the insections of the triceps muscle, to get at a portion of it where it is sound, becomes a very disagreeable part of the operation; and to make an incision on the fore part of the thigh to get at and secure the femoral artery, would be breaking new ground—a thing to be avoided, if possible, in all operations.

In December, 1785, six months after Desault performed his operation, Hunter had the opportunity of putting into prac-

tice his preconceived views. The point of ligation was "rather below the middle of the thigh," which must have been about the entrance of the artery into Hunter's canal. Evidently he was disposed to depart "as little as possible" from the old method. He applied a double ligature and tied both portions, but so slightly as only to compress the sides of the artery together. He then applied a second double ligature, lower on the artery, and tied it in the same manner as at first. It is an interesting fact, that in this operation he included both the artery and the vein in the ligatures.

Hunter, it was stated, used four ligatures, and merely tightened them so as to stop the circulation. Home states that "the reason for passing four ligatures was to compress such a length of artery as might make up for the want of tightness, as he chose to avoid great pressure on the vessel at any one part." This practice was in accordance with the prevailing opinion of that period, that arteries were closed by union of the opposed surfaces. The doctrine had come down from Ambrose Paré, and in the use of the ligature this object was especially sought. In various ways the ligature was modified to accomplish that purpose, but for the most part the flat ligature was preferred.

The lessons which Hunter drew from his operation were,—(1) that a number of ligatures is not useful, and that one is sufficient; (2) that the artery should not be disturbed further than is necessary to secure the passage of the ligature; (3) that it is not desirable to heal the wound by first intention, but, rather, allow the cut surface to inflame and suppurate, in order to have it in one's power to reach the artery more readily.

Hunter operated a second time soon after, and applied a single large ligature to both the artery and the vein. He left the wound open to heal by granulation, but his patient died on the twenty-sixth day from suppuration and haemorrhage, due, as he believed, to the open state of the wound. When the haemorrhage occurred, he ligated the artery at a higher point, but without avail. In the third case, he applied

a single ligature, and only to the artery; he also closed the wound to secure union by first intention. This case made a good recovery, as did two succeeding cases operated on in a similar manner.

A review of the surgical literature of that period makes it very evident that Hunter's operation was only one step, and that by no means a very long one, in the steady advance of improvements in the treatment of aneurism by operative methods. Anel proved that aneurism might be cured by the simple ligation of the artery on its proximal side, without incision of the sac, and thus incurring the dangers of subsequent suppuration. The fault in his operation is, that he adhered to the old method of applying the ligature as near as possible to the tumor, and thus was liable to place it upon a part of the artery partaking of the disease which caused the aneurism, the result of which might be secondary haemorrhage. Hunter remedied this defect by applying the ligature a little farther from the aneurism, and at as short a distance as possible, in order to secure a healthy portion of the artery. He employed the ligature, as was practised at that time, with a view of simply compressing the sides of the artery, and securing union by adhesive inflammation. On repeating the operation, he gradually improved in the use of the ligature by employing one where he had used four.

It is reported by Home that Hunter's operation was frequently repeated in the London hospitals, but with many modifications. For the most part, the departures from his method were rather towards Anel's operation. Birch used two ligatures, but left the second one loose. Earle applied the ligature above the aneurism, but in the popliteal space. Pott operated in a similar manner. Home, however, followed strictly the method of Hunter, and with marked success. At the close of the century, the merits of the new method were fully recognised, and pioneers began to venture into new and unexplored regions.

Another step in advance upon the old method, and scarcely less important than that made by Hunter, was suggested by

Brasdor. This consisted in applying the ligature upon the distal side of the aneurism instead of the proximal, and leaving the aneurism to consolidate by means of the blood retained in the sac. This operation differed slightly, if at all, in its practical effects upon the physiological changes in the aneurism, from the operation of Hunter. It was a most important suggestion, for it enabled the operator to treat successfully a class of cases in which it was impossible to ligate the main trunk on the cardiac side of the tumor. Desault advocated the operation, but Deschamps and Astley Cooper were the first to put the method in practice, the former for a femoral aneurism, and the latter for an iliac aneurism. Both failed disastrously. It was not again practised until 1825, when Wardrop applied a ligature to the carotid on the distal side of the tumor, and his patient recovered. Since that date, it has become a favourite operation in cases which do not admit of Hunter's method. Mott was the first to operate by this method in this country, his cases having aneurism of the innominata, for which he ligated the carotid. The first patient was cured, the second died from haemorrhage. Mott heartily approved the operation, and the success which has since attended it proves his practical sagacity.

The operation of Hunter renewed the discussion, which had long been in progress, relating to the action of the ligature on the artery. As has been stated, the prevailing opinion, at the close of the century, was, that the ligature should simply compress the sides of the artery together, when union takes place by adhesion of the opposed surfaces. This view led to various devices to promote the proper contact of the inner surfaces of the artery. A favorite ligature was made of a number of threads, which was called the "flat ligature." For the same purpose, more than one ligature was employed. Again: compresses were placed under the ligature, and on the artery.

In 1803–'4, a very original and exact series of experiments was performed by Dr. J. F. D. Jones, then a recent graduate

of the Edinburgh school, for the purpose of determining the exact changes which a ligature effected on an artery. The most important outcome of these experiments was,—(1) that when the ligature is properly applied, it cuts through the internal and middle coats, and brings the wounded surfaces together; (2) that an inflammation is excited on the internal and middle coats by being cut through, which gives rise to an effusion of lymph, by which the wounded surfaces are united and the canal rendered impervious; (3) that an ulceration of the external coat follows, and thus there is produced a complete obliteration, not only of the canal of the artery, but of the artery itself.

Though these propositions were combated by many authors, they greatly influenced leading surgeons, and finally came to be the prevailing belief, and continued to govern practice down to the antiseptic period.

The second notable incident of that discussion is the paper of Mr. Lawrence in 1814, advocating the use of a very fine silk ligature, and cutting both ends of the ligature. Hitherto vegetable matter had been used, as, *e. g.*, hemp. It was now proposed to use animal matter, and silk was selected, in the belief that it would soften and dissolve in such a manner as to be carried away by interstitial absorption. Mr. Lawrence proposed to apply a small ligature, close the wound, secure union by the first intention, and leave the ligature to be absorbed. He selected a fine quality of dentist's silk, and employed in each ligature the smallest amount possible to tie the artery. He says,—"The method I have adopted consists in tying the vessels with fine silk ligatures, and cutting off the ends, as close to the knot as is consistent with its security. Thus the foreign matter is reduced to the insignificant quantity which forms the noose actually surrounding the vessel, and the knot by which that noose is fastened. Of the silk, which I commonly employ, a portion sufficient to tie a large artery, when the ends are thus cut off, weighs between $\frac{1}{80}$ and $\frac{1}{60}$ of a grain; a similar portion of the thickest kind I have tried weighs $\frac{1}{20}$ of a grain, and of the slenderest $\frac{1}{100}$." Mr.

Lawrence states that "during the last ten months I have employed this method of securing the arteries in ten or eleven cases of amputation, in six operations on the breast, and in the removal of two testicles." With but one exception, the cases all did well, the wounds healed readily, and nothing was seen of the ligatures. The silk was now more frequently employed, but it was soon discovered that the ligature did not dissolve, and hence remained to cause future irritation and suppuration. While silk came to be preferred as a ligature, the method of Lawrence in closing the wound was rejected.

It is quite remarkable that Mr. Lawrence's suggestion caused no change in practice. He fairly anticipated the antiseptic or aseptic period, and the success of his method commended it to the favourable notice of every operator. It was, however, rejected or unheeded, and the method of Jones continued to be the favourite operation half a century longer, viz., the single ligature with one end depending from the wound. Mott rejected Lawrence's method, with the remark,— "The absurdity of it consists in this, that the wound will be healed by the first intention, and the ligatures by being left to remain as an extraneous substance, will, in the course of five or six weeks, manifest their injurious action by producing suppuration." This practice, he thought, was the other extreme of Scarpa's, who kept the wound constantly open.

In seeking for a ligature of strictly animal matter, Dr. Physick, of Philadelphia, seems to have been the first to recommend purely animal structures for ligatures. He selected deer skin, chamois, and catgut, and Dr. Dorsey employed them frequently.

A more remarkable contribution to the improvement of the ligature was made by Dr. Jameson, of Baltimore. He made a large number of experiments with various ligatures, and his conclusions completely anticipate the antiseptic period in everything except the use of positive antiseptic materials. He used a very soft deer skin, cut into fine strips, which had the form of the old flat ligature. This ligature he applied

with only sufficient firmness to press the sides of the artery together, and was careful not to divide the coats of the vessel. His purpose was to disturb the artery as little as possible, and especially not to injure the vasa vasorum, as he relied upon the organization of lymph about the ligature to close the vessel permanently. He alleged, as a result of his experiments and observations upon animals that when an animal ligature is applied, a capsule will surround the ligature so as not to disturb capillary vessels, or the vessel will be surrounded by an abundance of lymph, the ligature will be dissolved, and will not require removal. It is stated of Dr. Jameson's practice that for many years he used the deer skin ligature in amputations,—the ligature of the carotid, iliac, femoral, radial, and other arteries, and never had secondary haemorrhage. In what exact terms he describes the appearance of an artery some time after it has been ligated with a catgut ligature antiseptically, will appear when I speak of the present period.

The difficulty of passing the ligature around the artery, owing to the want of a suitable instrument, was a great embarrassment to the early surgeons. Some operators used a probe with an eye, others selected curved needles. At length instruments began to be devised, and many of them are now objects of curiosity as specimens of human ingenuity. The first really useful instrument was devised by Drs. Physick and Hewson, of Philadelphia. This needle was used by Mott in ligating the innominata, and highly commended by him. He subsequently improved it by attaching the needle to the handle by a screw, by means of which the handle could be removed when the needle was under the artery. This he called the "American needle," and it is still the best in use.

Among the visitors at the public hospitals of London in 1784–'86 was Dr. Wright Post, of New York. He was a recent graduate of medicine, and had been a pupil of Dr. Richard Bailey, one of the leading surgeons of New York. Dr. Post was a man of acute observation, and had an ambition to excel in surgery. There is little doubt that he was

present at St. George's hospital on that memorable day in 1785, when Hunter tied the femoral, and that he drew from it the inspiration which led to his future achievements in this field of practice. On his return he became a lecturer on surgery in the Columbia Medical College. Mott, who was his pupil, states that long before Astley Cooper operated on the carotid, he heard Post in his lectures assert his belief that not only one carotid might be tied for aneurism, but that both might be interrupted by ligatures, on the same person, and the patient recover.

About the year 1794–'95 Dr. Post applied a ligature to the femoral artery on the plan of Hunter. This case has never been tabulated, and is alluded to incidentally in his report of the case of inguinal aneurism for which he ligated the external iliac, and by Mott in his biography of Post. The patient had a femoral aneurism, caused by a wound of the artery fifteen years previously. The precise location of the aneurism is not given, nor the point at which the ligature was applied. He states that the patient recovered from the operation in about the ordinary time, and the tumor gradually diminished until it was reduced to a size not exceeding one inch in diameter. But the remarkable fact connected with it, to which he makes special allusion, was the continuance of the pulsation in the tumor. This he attributed to the increase in the size of the anastomosing vessels, due to the long continuance of the aneurism. The circulation in the aneurism did not interfere with the gradual diminution of the tumor. He says,— "The limb, which had been rendered wholly useless to him by the immense size of the tumor and the extreme pain which he had suffered in the latter stages of it, recovered its powers in a reasonable time, and he has continued to use it in all the ordinary exercises of walking, riding, &c., with as much freedom and as little inconvenience as before the disease took place."

Mott, alluding to this case, states that the man was living thirty years after the operation. This was the nineteenth recorded ligation of the femoral after Hunter's first opera-

tion, and the first operation by the new method in this country.[1] It was also the first instance of a discussion of a return of the pulsation in the aneurism after ligature of the artery, with a correct appreciation of the cause of such pulsation.

On January 9, 1813, Dr. Post ligated the common carotid artery for aneurism successfully. This was the fifth operation on the common carotid, and the third successful case. It was the first operation in this country for aneurism. In this case Post passed two ligatures around the artery, about three quarters of an inch apart, and divided the artery between them. He also passed the needle through the artery, as recommended by the younger Cline, to prevent the ligature from slipping from the end of the artery.

The practice of applying two ligatures and dividing the artery between them dates back to Fabricius, of the 17th century, but was warmly advocated by Abernethy, and practised by him. The danger of haemorrhage from the slipping of the ligature from the end of the artery was at that time regarded as very great, and to prevent it a needle was placed on the ligature after it was tied, and the thread was passed through the artery close to the ligature and tied with the knot already made. This expedient was first recommended by Dionis, and not by Cline as stated by Post.

The patient recovered from the operation, but the aneurism opened after eight months, and a large haemorrhage occurred. This haemorrhage was repeated about six weeks later, when the entire contents of the sac appeared to be discharged, and healthy granulations sprang up. The recovery was now rapid and complete.

One year later, viz., Jan. 4, 1814, Dr. Post applied a ligature to the external iliac for inguinal aneurism. The method of operating was interesting, for at that period no very definite rules had been fixed. He describes his operation as follows:

[1] Thomas Kast, of Boston, operated for traumatic aneurism of the femoral artery in May, 1786, by the old method.

An incision was made through the integuments with some degree of obliquity, between three and four inches long, beginning a small distance above the tumor, and extending upward externally to a middle line between the umbilicus and superior anterior spinous process of the ilium. The abdominal muscles were then cut through, until the peritoneum at the lower part of the wound was fully exposed. I next endeavoured to detach this membrane from the crural arch so as to get at the artery without opening into the cavity of the peritoneum; but in this attempt I was frustrated. The strength and thickness of the peritoneum at this part were considerably greater than natural, and its adhesion to the ligament so firm that the separation, which is ordinarily so easily effected, was found in this case altogether impracticable. This condition of the parts may reasonably be ascribed to the pressure of the aneurismal tumor. To arrive at the artery, therefore, under these circumstances, it was necessary to cut through the peritoneum, and thus expose the patient to the additional hazard of inflammation of this membrane, to which it is generally supposed to be very liable when an opening is made into the common cavity of the abdomen. But to accomplish my object there was no alternative. I did not hesitate, therefore, in proceeding with the operation in this manner.

He had great difficulty in his efforts to expose the artery and open the sheath, and to avoid enlarging the wound of the peritoneum he passed the needle, armed with the ligature, through the sheath, on the under side, from within outward. He employed a needle suggested by Dr. Physick, and which was used by Dr. Dorsey in his operation on the same artery. The patient made a good recovery.

The noticeable features in this case are,—

1. The incision of the peritoneum, and free exposure of the abdominal cavity. No harm seems to have followed this treatment of the peritoneum. There are two suggestions which may perhaps explain the freedom from peritonitis in this case. The first is, that Dr. Post is always spoken of as a man of great fastidiousness as regards his personal appearance and dress: this led to extreme neatness and cleanliness of his hands, and of his instruments, and of the details of his dressing of wounds. The second is the fact, that at the close of the first day the patient was required to take an active cathartic, composed of infusion of senna, manna, and cream of tartar, which produced, according to the record, "frequent

and copious dejections." This thorough action of the bowels would tend powerfully, according to present teachings, to remove the accumulating causes of acute peritonitis after incision of that membrane.

2. Pulsation in the tumor returned on the 24th day, and was continuing at the time of the report, three months after the operation, but without any change in the tumor. He raised the question as to the liability of the return of the aneurism, but decides that it will not return, basing his conclusion on his experience in the case of the femoral aneurism previously described.

On the 28th of November, 1816, Post again ligated the common carotid artery for a pulsating tumor of the neck, about which there was a difference of opinion as to its nature. The patient recovered from the operation, but died two years subsequently. The autopsy disclosed a tumor, with no indications of the previous existence of an aneurism. It was this case that Mott often alluded to in his lectures illustrating the difficulties of correctly diagnosing an aneurism from an abscess, or a tumor situated upon an artery. At the consultation of Post, Stevens, and Mott, the question raised was as to its being an aneurism, an abscess, or a solid tumor. Post regarded it as an aneurism, Stevens as an abscess, and Mott as a solid tumor. Stevens proposed to Post the propriety of exploring it by puncture with a lancet. Post responded by handing Stevens a lancet. Stevens declined, and proposed that Mott should explore. He also declined, and Post was allowed to exercise his discretion.

On the 8th of September, 1817, Dr. Post ligated the left subclavian, in its third part, for aneurism of the brachial artery. He employed the needle invented by Drs. Parrish, Hartshorne, and Hewson, of Philadelphia. The patient made a good recovery, though the aneurism ruptured and discharged its contents during convalescence. This was the eighth recorded operation on the subclavian artery, and the third which recovered. It was also the first operation upon that artery in this country by the new method.

It thus appears that at this early period in the history of the new method, Dr. Wright Post applied the ligature to four different arteries successfully, and twice to the carotid. And these were by no means simple and uncomplicated cases. Each case presented more than ordinary difficulties, and one—the external iliac—involved complications which, at that period especially, almost uniformly proved fatal. A success like this was not recorded at that time, and has not been surpassed even in these antiseptic days. As already remarked, we can only account for his great and uniform success by the extreme care of the operator in protecting the wounds from the admission of the common forms of septic matter which adhere to the hands, instruments, and dressings.

Of the five operations, Dr. Post was anticipated in this country in but one instance, viz., ligation of the external iliac. Dr. Dorsey, of Philadelphia, operated in 1811, about three years before Dr. Post.

Great as was the merit of Dr. Post as a successful pioneer in this field, he was destined to be surpassed by his student and colleague in the New York hospital, Dr. Valentine Mott. Mott had not only imbibed a strong predilection for surgery by attendance upon Dr. Post's lectures, but he became also a pupil of Astley Cooper at a period when that surgeon was the leading operator in London. Cooper was the first surgeon who applied a ligature to the carotid artery for aneurism. This operation was performed in 1805, but was unsuccessful. In 1808 he repeated the operation successfully, and Mott was present at the operation. He always spoke enthusiastically of this occasion, and evidently was greatly stimulated by it to pursue the study of aneurisms and their treatment.

A few months later, Cooper attempted to ligate the left subclavian between the scaleni muscles, but failed. Mott was present at this operation also, and was deeply impressed with the difficulties of the procedure, and Cooper's skill and candor. Speaking of the operation, Mott states that "after working indefatigably with all his eminent skill and superla-

tive tact for an hour and a half, he [Cooper] abandoned the operation."

On returning home, Mott was well equipped for the great career which was opened before him. His personal qualifications were of a high order. He was, first of all, a laborious student—not so much of books, for few were then to be had, but a student of nature. He performed no operation during his long life that he did not make the subject of careful study and preparation, if the circumstances permitted. Again: He was a very bold operator, and well adapted to be a pioneer. But this boldness was guarded and tempered by a conscientious conservatism. Moreover, his preparation for every operation and his careful foresight of all possible emergencies rendered his fearlessness in undertaking operations entirely safe. Finally, he was a remarkably clean person, being even more fastidious in his dress than Dr. Post. It was a remark of one of his contemporaries, that, on Dr. Mott's return from Europe, he was so extraordinarily neat in his person that he attracted the attention of every one when he appeared on the streets. This neatness extended to the care of his instruments, which he required should be thoroughly cleaned, not only after each operation, but also just before an operation. How much of his success in the recovery of his patients was due to this practical asepticism we can now only conjecture, but that it had a most potent influence there can be no doubt.

Mott's pioneer work appears in the ligation of the arteria innominata and the common iliac arteries. The application of a ligature to the innominata artery was not only Mott's greatest achievement in operative surgery, but was the most brilliant operation ever undertaken by any surgeon in the history of operative surgery to that date. Nor has it been excelled in this particular branch, if we consider all the circumstances attending the operation. It was by no means suddenly conceived and executed, but was the culmination of years of preparation. He states that "since the publication of Allan Burn's invaluable work on the surgical anatomy of

the head and neck, I have been in the habit of showing, in my surgical lectures, the practicability of securing in a ligature the arteria innominata; and I have had no hesitation in remarking that it was my opinion that this artery might be taken up for some condition of aneurisms; and that a surgeon with a steady hand and a correct knowledge of the parts would be justified in doing it." The proper case presented itself March 1, 1818; and he says, "I could not for a moment hesitate in recommending and performing the operation." Dr. Wright Post, whom he had so often aided, now became his assistant and guide. Though the operation finally failed after giving the most encouraging prospect of success, Mott was not disheartened, but regarded the practicability and propriety as satisfactorily established by this case, and predicted that it would prove to be "the bearer of a message to surgery, containing new and important results."

The ligation of the primitive iliac for aneurism was performed March 15, 1827. Gibson had previously applied a ligature to this artery in a case of gun-shot wound during a riot, but he simply seized a bleeding vessel with his finger and applied two ligatures, and found at the autopsy that one was on the common iliac. Mott's operation was executed with his usual care and caution, though it was rendered very difficult, owing to the size of the tumor and the adhesions of the peritoneum. The patient made a good recovery, and was living thirty years after. In the practice of other surgeons the operation has proved very fatal. During the twenty-five years following Mott's operation, there were eighteen ligations of the common iliac with fourteen deaths, or upwards of seventy-seven per cent.

Mott's experience in the ligation of arteries was very great, and his success was remarkable. For example: He ligated the subclavian in its third part six times, all the cases successful; the common carotid thirty-two times, with five failures; the external iliac six times—two died, one from drunkenness, one from secondary haemorrhage; the femoral fifty-three times—failures not known. He had but one case of mortification of the

extremity, a success which Dr. Blackman attributed to Mott's great attention to details. Fruitful as was Mott's career in great surgical deeds, the application of a ligature to the arteria innominata gave to him his most enduring reputation. He was accustomed to speak of the exsection of the entire clavicle as his "Waterloo operation," but the profession has accorded the highest distinction to the former operation.

Scarcely less remarkable as a triumph of bold and daring surgery was Dr. Kearney Rodgers's ligation of the left subclavian artery within the scaleni muscles, in 1845. Indeed, Mott, who was one of the consultants, opposed the operation at the time and afterwards. He admitted that it might possibly "be tied by a careful and well informed surgeon," but he "considered that it was improper to do so." But Rodgers had been led, as he states, "to investigate the subject with great care, and accordingly gave it my most sedulous attention." He adds, "I had always considered it as a perfectly justifiable operation, and one that a careful surgeon conversant with anatomy could accomplish, if the tumor was of moderate size." The consulting surgeons threw the entire responsibility upon him, and thus rendered the undertaking doubly important to the operator. He was about to attempt an operation which not only such veterans as Mott and Stevens declined positively to sanction, but which leading foreign authorities decided was not possible. Rodgers had before him, as he states, the utterance of Colles, the eminent Irish surgeon, who first tied the right subclavian in its first stage. His dictum was,—

> This operation, difficult on the right, must be deemed impracticable on the left, subclavian. For the great depth from the surface at which this vessel is placed, the direct course which it runs in ascending to the top of the pleura, the sudden descent which it makes from this to sink under the protection of the clavicle, and the danger of including in the same ligature the eighth pair of nerves, the internal jugular vein, or the carotid, which all run close to and nearly parallel with this artery,—all these constitute such a combination of difficulties as must deter the most enterprising surgeon from undertaking this operation on the left side.

But Rodgers was a most skilful operator, of great courage and reserved mental force. He assumed the weighty responsibility which his colleagues imposed upon him, and, true to his convictions of duty, proceeded to execute the trust committed to his care. The operation proved in every respect as difficult as had been alleged, but he was thoroughly prepared for every emergency. The ligature was successfully applied, and for several days everything promised success, but on the thirteenth day a haemorrhage occurred, and on the fifteenth the patient died. The lesson which Rodgers drew from his operation was, that the vertebral artery, and, if possible, the thyroid axis, should be secured by ligature. He says, in concluding his report of the case, that, though the operation was unsuccessful, he trusts that "from the knowledge thence derived, we shall be enabled to enlarge our sphere of usefulness, and be the means of preserving human life." This was the first and only attempt that has been made to ligate the left subclavian within the scaleni muscles.

During the quarter of a century preceding 1868, scarcely any improvement is noticeable in the ligature of arteries. The operations of Hunter and Brasdor were applied in a great variety of conditions, but no modifications worthy of note were made. There were, however, many notable achievements during that period in the ligation of arteries. Perhaps the most important was what has been regarded as the successful ligation of the innominata by Dr. A. W. Smyth, of New Orleans, in 1864. In this case the carotid was ligated at the same time, and on the fifty-fourth day the vertebral was also ligated. Another interesting incident in this period was the revival of the old method by Syme. In three instances he succeeded in opening the sac and tying the arteries at the base of the tumor. All recovered.

The part borne by American surgeons in the history of the ligature of arteries is most creditable. They have not only been pioneers in enlarging the boundaries of this field of practice, but they have cultivated it with a degree of success unrivalled even by British surgeons. An examination

of the statistics of ligation of the principal arteries during the first three quarters of the present century proves the correctness of this statement. Of sixteen operations upon the innominata, six were performed in this country, or nearly thirty-eight per cent. Of these operations one American surgeon performed the first, and another the only successful operation. Of thirteen ligations of the subclavian in the first part of its surgical course, American surgeons performed five, or more than thirty-eight per cent. Of these cases, all of which were fatal, an American surgeon alone ligated the left subclavian within the scaleni. A comparison of the operations upon all of the principal arteries exhibits an equally honourable record.

On the 31st of December, 1868, an event occurred which was destined to be the final consummation of all improvements in the ligatures of arteries. It was the occasion of the application of ligatures to the carotid artery of a calf, by Mr. Joseph Lister. The ligatures were of two different kinds, and were applied at an interval of about an inch and a half. The cardiac ligature was composed of three strips of peritoneum from the small intestine of an ox, firmly twisted; the distal thread was made of fine catgut. Both had been treated with a saturated watery solution of carbolic acid. The ligatures were cut short except that one end was longer than the other. The wound was completely closed, and it promptly healed. Thirty days after the operation the parts were examined, *post-mortem*, and the appearances carefully noted. There was an entire absence of inflammatory thickening in the vicinity of the vessel. The knots of the distal ligature had disappeared, and the only indications of the end which had been left long was a black speck, here and there, upon a delicate thread of cellular tissue in connection with the vessel. The cardiac ligature was continuous in structure with the cardiac wall. The short ends had disappeared, but the knot was represented by a soft, smooth lump, in the interior of which, and lying close to the wall of the artery, was a small residual portion of the original knot, quite

distinct from the living tissue around it. Between the proximal ligature and the heart, the formation of a coagulum had been entirely prevented by a large vessel taking origin immediately above the part tied, which had thus borne for a month the full brunt of the cardiac impulse. Clots had formed on the distal side of the ligature. A more minute examination showed that the fleshy material which had been formed at the expense of the ligature was a beautiful example of fibro-plastic structure, the coarse fibres which mainly constituted it being composed of very large elongated cells, often containing several nuclei, and presenting, in their course, branchings and thickenings of various forms. At the situation of the distal ligature the structure of the vessel seemed entirely unaffected, the middle coat being neither thicker nor thinner than the neighbouring parts. The vessel, so far from showing any sign of giving way, appeared to have additional strength from the operation. The encircling ring of new tissues, incorporated with the arterial walls, must have had a corroborative effect.

Sometime after Mr. Lister's publication, I had an opportunity to test upon the human subject the practical value of this experiment.

A man, aged 40, suffering from cancer of the tongue, tonsil, and pharynx, came under treatment at an advanced stage of the disease. He was extremely emaciated, very sallow, could swallow liquids only and with great difficulty, and spoke in a hoarse whisper. He had recently had several slight haemorrhages from the region of the affected tonsil, and was very apprehensive lest he should bleed to death, and extremely anxious to have measures taken to prevent its recurrence. Extirpation of the whole or any part of the growth so as to benefit him was impossible without endangering his life. The only operation practicable was ligature of the trunk of the vessel whose branches were distributed to that region, viz.,—the external carotid. This operation he urged to have performed, and accordingly a catgut ligature, carbolised, was applied. The ends were

cut short, and the wound closed. Except a slight formation of pus under the skin, due to imperfect drainage, but having no connection with the ligature, the recovery was prompt, and the patient was soon walking about as usual, the cicatrix becoming firm and depressed.

He had no more haemorrhages, but died of exhaustion from inanition six weeks after the operation. The autopsy revealed the following condition of the parts involved in the operation: The common carotid, laid open to its bifurcation, was entirely free and without discoverable change. At the bifurcation, and throughout its extent, the internal carotid was normal and without a trace of injury. Near the origin of the external carotid the calibre of that vessel suddenly diminished, and, a little higher, was completely closed. There was no trace of a clot, and no evidence that there had been a clot. But what attracted most attention was a bulbous enlargement of the artery at the point of ligation, which had the appearance of a large ring of new tissue around the artery. This ring was as hard and dense as a cicatrix. An incision was next made through this structure down to the centre, or to a point corresponding with the centre, of the vessel. The calibre of the vessel was completely obliterated by the firm union of the opposing surfaces. Above this point was a well formed clot extending to the origin of the superior thyroid. On dissecting the ring of new tissue, it was found to be well organised, and at two points was discovered a fine black substance, one portion being an eighth of an inch long, having a direction transverse to the long axis of the artery. These threads were the only remains of the ligature traceable.

Looking at the specimen as a whole, it was apparent that the results of the application of the ligature in this case had been,—1. The immediate closure of the artery by pressure. 2. No injury to the internal and middle coats. 3. The permanent closure of the artery by the union of the opposing surfaces. 4. The strengthening of the artery, immeasurably, by the formation of an immense ligature of living tissue.

5. The possibility of ligating an artery close to its origin, with only the result of strengthening the vessel at that point.

Commenting upon his experiment, Mr. Lister remarked,—

> It appears that by applying a ligature of animal tissue antiseptically upon an artery, whether tightly or gently, we virtually surround it with a ring of living tissue, and strengthen the vessel where we obstruct it. . . . The surgeon may now tie an arterial trunk in its continuity close to a large branch, secure alike against secondary haemorrhage and deep-seated suppuration.

To one who has been familiar with the painful anxiety with which the earlier surgeons watched their cases, especially at the period of the separation of the ligature, such language will seem preposterous. But, fortunately, it is true. We have reached the happy era of surgery, when to ligate an artery means to strengthen it at the point of ligation. We can ask no more. The improvement in the ligation of arteries reaches its consummation in perfection.

A CASE CONNECTED WITH THE ADDRESS ON SURGERY.

By Lewis A. Sayre, M. D., of New York County.

October 23, 1890.

(Extract from my note-book. Amputation of Leg.)

December 9, 1847. Mr. Parsons, aged 53, 101 Fulton St., received a wound in the anterior, superior region of the left thigh, by the bursting of a gun in 1815. Eight years after, an aneurismal tumor made its appearance in the upper femoral region, and in 1824, Dr. Mott applied a ligature to the external iliac artery of that side with perfect success. While confined to his room with the disease and by the operation, he was in the habit of resting his legs over the back of a chair placed in front of him, and in a short time a popliteal aneurism made its appearance on the right side. In 1825, Dr. Mott ligatured the femoral at its upper third on the right side; the foot became cold, and in ten days a slough took place at the base of the great toe, which remained an open ulcer, discharging pieces of bone for a long time. The aneurismal tumor sloughed, and discharged copiously a bloody purulent matter, and after a few weeks healed. The foot never regained its proper temperature, and frequently, and for a long time, sloughing ulcers would occur upon different parts of it with the discharge of pieces of bone and unhealthy pus. Eventually, these sores would heal only to break out again, until at last the os calcis, the metatarsal bones of the second toe, and little toe were completely lost, and finally the foot healed, leaving it very much deformed and useless for walking. His general health became very good, and continued so until four months ago—a period of fifteen years. Four months since, while walking, his crutches slipped, and he fell, striking his lame foot so as to cause a great deal of pain, but with no external injury. About two weeks after the fall, an ulcer appeared at the point where he struck the foot, and began to shoot out fungous granulations, with acute lancinating and burning pains. No treatment appeared to palliate the pain in the least. In a few weeks, two other ulcers of the same character made their appearance, one on the heel and the other at the base of the fourth toe. His health began to fail, he was compelled to take large doses of laudanum, and, finally, sent for me, desirous of its

removal. I saw him yesterday, and found his foot as I have described; and to-day, December 9, 1847, with the assistance of my students, Messrs. Thebaud, Milhau, Bullock, and Dusenbury, and Dr. Trudeau, I removed his leg at the upper third by the half circle and flap amputation. The parts cut through looked perfectly healthy, but a few inches below, *i. e.*, around the ankle, we found cancerous degeneration (as we then supposed). The stump showed beautifully the process by which nature had arranged to supply the parts below with blood, after the proper channel had been obstructed. Innumerable small vessels appeared, twenty-six of which required the ligature. Then leaving it for two hours, and finding no further haemorrhage, I proceeded to dress it up in the usual way, and left him comfortable with a good pulse at 80.

March 1, 1848. Saw Mr. Parsons to-day walking in the street with a wooden leg, in perfect health.

January 7, 1857. Saw Mr. Parsons, who walked to my office, in perfect health, and says he can walk seven miles without inconvenience. It is now nearly ten years, and there are no symptoms of cancer anywhere.

THE PHYSICIAN AS A WITNESS.

By M. Cavana, M. D., of Madison County.

October 23, 1890.

It is the aim of the author, in this endeavour, to place before the Fellows of this Association something of his observation and experience, in the attitude of an observer and participant, in the duties of the physician as an expert witness,—trusting that the attempt may result in benefit to those of our number, if any there be, who have yet to experience the ordeals of a professional expert in our higher courts of justice.

Being a firm believer in the demonstrative methods of teaching, the author has attempted in this article to reproduce such original examples, in language and other minute detail, as in his judgment best illustrate the subject in question.

The yielding of testimony upon questions of fact, and opinions deduced from scientific considerations of matters of theory and hypothesis, before a crowded assemblage in a court of justice, constitutes, at the present educated age, a function of the physician and surgeon of such importance, that it demands far greater attention on the part of our profession than in the judgment of the writer it usually receives.

In the frequent legal issues upon questions of damage to life or limb, and in all of the trials for high crime, the physicians and surgeons are invariably material witnesses upon both sides of the action. During the trial of a fellow-being for his life or liberty, in every locality human curiosity never fails to develop audiences of extreme proportions, comprising both sexes, and representing every variety of occupation and grade of intelligence in the vicinity.

The local medical gentlemen, witnesses in the case, become the chief objects of scrutiny, and of criticism or commendation, as (in the belief or impression of the listeners) they demonstrate while upon the stand; and, in consideration of the fact that laymen judge harshly, also that many a reputable physician and skilled surgeon may trace the first descending steps from lucrative practice to some foolish, unwise, and unnecessary oversight or misconduct before the public, while undergoing the enfilade of a cross-examination in court, it would seem that the time had arrived when we should awake to the necessity of qualifying ourselves for better protection against such possibilities.

In offering a few examples by way of illustrating the tricks of attorneys, errors of physicians, and ignorance of certain judges in surgical science, while not clothed in the precise language employed in the mentioned cases, nor embodying the examinations entire, we aim to include, in substance, such portions of the court proceedings as are pertinent to our subject, at the same time maintaining the necessary respect for our professional brethren, who were actors in the drama, by the withholding of names, dates, and localities.

Case I. *The People v. Blank.* A trial on the charge of assault in the first degree, to which Blank pleaded insanity. Dr. A. B., an eminent physician and surgeon, who attended the assaulted party, was made a witness for the people. In his direct testimony, Dr. B. swore positively that the accused was not insane, and replied with equal firmness to the hypothetical question offered by the defence. During the cross-examination, the attorney for the defence, chagrined at the positive attitude of the doctor and his unmistakable eagerness for the success of the prosecution, propounded the following questions:

"Doctor, you swore in your direct examination that the defendant, at the time of committing this act, was positively not insane?"

"Yes, sir, I did."

"Now, doctor, upon careful reflection and consideration of all of the facts, his attempting suicide immediately after the act, etc., is n't it possible, if not probable, that the defendant might have been insane?"

"No, sir, he was not insane; he was drunk."

"Well, doctor, did you drink with him that day?"

"No, sir, I never drink."

"Did you see *him* drink anywhere?"

"No, sir, I did not."

"Well, did you detect an alcoholic odour in his breath?"

"No, sir, I was n't near enough to him for that."

"Then, doctor, I would like to have you tell this jury how in the name of Heaven you knew that this man was drunk."

The doctor failed to explain, but repeated his affirmation that he *knew* the defendant was drunk. Then followed the question,—

"Doctor, are you familiar with the various forms of insanity?"

"I claim to be able to designate insanity from drunkenness."

"Very well, then you must certainly understand the anatomy of the human brain?"

"Yes, I claim that I do."

"Then, doctor, I wish you to tell this court and jury how many blood-vessels are contained in the human brain."

The doctor replied,—"I cannot tell you the number, sir; there are a great many of them."

"What! cannot tell the number of blood-vessels in a man's brain, the most important portion of the brain's structure?"

"No, sir, I can't."

"Well, doctor, if an expert's knowledge of insanity were on a par with your knowledge of the structure of the human brain, you would hardly be willing to send a fellow-being to prison upon such an opinion or testimony, would you? Now, doctor, tell this jury how the blood reaches the brain."

"Why, through the carotid arteries."

"How does it return from the brain?"

"Through the veins, of course."

"On which side of the neck are these arteries and veins?"

"Why, on both sides."

"What! do you swear that the blood does not go up to the brain through the arteries on the right side of the neck, and return through the veins on the left side?"

"Yes, sir, I do."

"Doctor, are you as positive of this as you are of all of the testimony you have given in this trial?"

"Yes, sir, I am."

"Well, doctor, that 's all."

The above questions were so purely ludicrous, that little attention was given the matter by either the prosecution or its medical advisers. But in the summing up of the case, much energy was displayed upon this proof of the ignorance of Dr. B. The defending attorney, in the attitude of a conqueror, and with a sweep of his hand (containing a volume of Wharton and Stille), argued that even a common student of physiology

was conversant with this fact, and that no reputable physician of the land would deny that the blood flowed upward through the arteries on the right side of the neck to the brain, and returned through the jugulars and other veins on the left side of the neck—no allusion being made, however, to the *whole* truth, that the blood also flowed upward on the left as well as on the right side, and was returned as well through the right jugulars. The jury and audience were, of course, convinced by the illusory argument, and withdrew from that court scene in astonishment at the surprising ignorance of the expert witness.

Case II. In the action of the *People v. Blank*, under indictment for murder, and a plea of not guilty, the defending attorney drew from the lay witnesses to the autopsy the fact that a common wood-saw and a stove-shovel were employed in the act of removing the calvarium; also, that, with the lifting of the skull, the brain was displaced from its cavity. The details of the autopsy were so vividly drawn from these witnesses, and so horribly pictured to the court, that the sitting district judge turned his back to the witness-box in disgust, believing at the time that the entire testimony was unscrupulously manufactured for the occasion. But when the unfortunate coroner and his two physicians, who performed the autopsy, were respectively placed upon the stand, and forced to admit all that had been detailed by the previous witnesses, the astonishment of the court and the surprise and disgust of the entire assemblage became painfully apparent.

The strong circumstantial evidence in this case secured speedy indictment and promised probable conviction, until the autopsy was reached, when the tide of public sentiment, tinged with more or less prejudice, at once disheartened the able prosecuting attorney in its abrupt sway in the direction of the defence. In the summing up of the case, the autopsy was again pictured to the jury by the defence, in as illusory and ridiculous terms as the attorney was able to command The result of the trial, of course, was an acquittal of the accused. Subsequent inquiry revealed the facts that one of the surgeons secured a new, finely cut cabinet saw, which was used at this autopsy, and that the calvarium was pried from the head by aid of the handle of the fire shovel, that the attachments of the dura mater to the calvarium withdrew the brain from its seat in the act of elevating the skull, and that, in reality, the details of the autopsy were, in efficiency, substantially unquestionable.

Case III. *The People v. Blank*, indicted for infanticide, and a plea of insanity. At a session of the commission, which was organized for the purpose of determining the mental condition of the accused, Dr. C. D., of a neighbouring county, was produced by the defence as an expert medical witness. On his direct examination the doctor proved himself the medical superintendent of his county hospital, which included a department for the insane. The doctor further qualified as an expert on insanity in

the affirmation that he had familiarised himself with the various popular works on the subject. The cross-examination of this expert revealed the facts that the hospital, or retreat in question, was in reality an ordinary county poor-house; also, that the expert medical superintendent became the professional attachee of the place by virtue of an appointment and a contract to render such medical service as the inmates from time to time required, and that his salary for such service amounted to about twenty-five cents per day during the year. As a further humiliation to the witness, the district attorney assailed the doctor's knowledge of insanity, in substance, in about the following manner:

"Doctor, you state that you are somewhat familiar with the popular works on insanity?"

"Yes, sir, I have read most of them."

"Doctor, are you familiar with Hammond on the diseases of the brain and nervous system?"

"Yes, sir, I have read the work."

"Have you ever read Steincamp on the diseases of the spinal cord?"

"Yes, sir, I have read some of the work."

"Are you familiar with Bourgero's work on insanity?"

"Yes, sir, I am somewhat familiar with it."

"Did you ever study Larabee on acute diseases of the brain?"

"Yes, I have read it some."

"Doctor, have you ever read McIntyre on puerperal insanity?"

"Yes, sir, I have seen the work, and read somewhat of it."

"You consider him a good authority, do you not?"

"Well, yes, pretty good."

"Doctor, have you this work in your library?"

"I think I have, if it has not been borrowed from me or lost in some way."

"Very well, doctor, that is all."

When the attorney, by way of rebuttal, placed Dr. E. F. upon the stand, and by him proved that all of the above-named authors (with a single exception) were purely fictitious, and that no such works on medical literature, edited by Steincamp, Bourgero, Larabee, McIntyre, etc., ever existed, although the expert had testified of his familiarity therewith, the extreme humiliation of the witness and the chagrin of the representatives of the defence in the action can be better imagined than described.

Case IV. *G. H. v. The Town of Blank.* A civil action in the Supreme Court, to recover for fractures of both bones of the right leg at its lower third, the consequence of the falling in of an unsafe bridge while the plaintiff was crossing in the seat of a heavily loaded vehicle.

In this case the writer appeared as a witness for the plaintiff, having rendered surgical assistance in the care of the fractured limb, and we

therefore submit a portion of the court proceedings, illustrative of certain antagonisms between the professions in trials before the benches of judges possessing only homoeopathic stores of surgical knowledge.

In establishing before the jury the character of the injury, etc., the plaintiff's attorney drew forth the information that the result of the surgical care of the limb, though not perfect, was considered a good average convalescence. This reply drew from the bench the inquiry,—

"What! are not the bones now in perfect apposition?"

The witness replied, "No, sir, they are not."

In his address to the jury, this district judge of the Supreme Court of the State of New York charged in substance, that though Dr. C. had sworn that the bones were not in perfect apposition, it really required no more mechanical ingenuity and skill to replace and keep these broken bones in place, than it would to splice or mend a broken pole, or thill, to one of their wagons.

Another portion of the examination of this witness included about the following queries from the same bench:

"Doctor, what were your services worth in this case?"

"My bill for services, including livery hire and the supplies which I furnished——"

"No, what were your *services* worth?"

"Do you inquire the value of my services, exclusive of supplies?"

"No, no, what were your *services worth?*"

"Do you ask as to the value of my services to the patient?"

"Yes, sir."

"My services, rendered to the plaintiff, in my judgment were worth $50,000, for they doubtlessly saved his life."

"No, no, no, doctor, I fear that the jury will give but little credence to your testimony; *what were your services worth?*"

"Sir, I am unable to answer that question in any other light than heretofore attempted."

"Very well, then, we will pass the question."

The desired information was subsequently developed by this query of the plaintiff's attorney: "Doctor, what was the amount of your bill against the plaintiff, which was paid to you by him, for your entire care of his case?"

The above discrepancy was but the natural result of the employment, on the part of the judge, of the term services in that unlicensed, broad sense, apparently covering, in his opinion, the precise scope in *our* profession (where the expense of livery hire, apparatus, supplies, etc., must be added to the labor), as in his calling where simply the brain and vocal organs are brought into action in developing results.

In passing from the clinical histories to the remedies for the contingencies, described in the above situations, we beg to submit such suggestions as have occurred to us as being the most effectual methods of protection to the physician's "stock in trade," his local reputation.

First and foremost, allow us to urge, with all possible human emphasis, thorough acquaintance with all of the medical and surgical points obtainable in the case, and then, from one or two of the latest accepted medical authorities, thoroughly qualify upon the probable material questions in the issue. Adhere strictly to the one or two authorities which have been studied, and disclaim any familiarity with all others.

Post upon the main anatomical features, and never hesitate to admit that you have forgotten such portions of the study as are not readily recalled; at the same time, remind the audience and jury, by a suffix to the reply, that even attorneys are forced to consult their authorities at times.

Secure the favour of the entire court by manifesting a spirit of absolute fairness to both parties in the action, avoiding all prejudice and indication of personal interest in the result of the trial. It is the fair testimony that weighs with a jury, and no reputable attorney will dare to hazard his case in attacking a fair witness.

Avoid technicalities, unless fully interpreted in common English when employed. Witnesses who persist in the use of technical terms not only displease their hearers, but expose themselves to the charge of being airy or vain.

Weigh carefully the purport of every question from the cross-examiner, and reply with *confidence;* for the witness who habitually hesitates becomes easy prey to the attorneys of the opposition.

Never reply to questions that are so framed as can be doubly construed; rather prove such fact, if any uncertainty exists, by demanding a repetition of the question, and then inquiring as to which construction was intended. The compound question, is an especial favourite of the shrewd cross-examiner, who invariably insists upon replies thereto in the monosylla-

bles of yes or no. These questions are so constructed as to render the reply "Yes" proper to a portion, and "No" to the balance of the subject-matter. When thus confronted, the writer habitually conforms to the request of the attorney for replies in monosyllables, and embodies, in each of such replies, both of the terms "Yes" and "No." And when the attorney demands the analysis of the extraordinary response, we charge his question with compound or complex construction, and ask for its analysis before replying further.

Prefix replies to mythical and misleading questions with the statement that in correctly answering such questions an explanation is necessary, and then insist upon your right to render such explanation as will leave the matter perfectly clear, even though you appeal to the court for the privilege.

Avoid the habit of volunteering information tending to affect the issue, beyond that included in the question asked.

Adopt and observe the rule never to enter the witness-box until you have stationed at the side of your attorney a medical colleague, who is fully competent to suggest, in your redirect examination, such interrogatories as may be necessary to insure the placing of your testimony in its fair and proper light before the court and assemblage.

In the autopsy room, permit the presence of none excepting those who are legally entitled to remain, particularly if common tools are to be employed in the labour. The meagre autopsy outfits of many physicians do not include the saw and chisel,—therefore those operators are compelled to meet emergencies with such means as may be at hand; and while their results may be exceptionally reliable and complete, even though the wood-saw and fire-shovel are pressed into service, yet a sweeping publication of the fact, before the uninitiated populace, cannot but depreciate the value of the service, as well as the reputation of the operators as skilled and qualified surgeons.

This feeble contribution would be conspicuously incomplete without a word, by way of earnest caution, to the common obstacle to our more rapid progression in the estimation

of a thinking public as a class of scientific men, namely, the deplorable conduct of certain physicians, who become the ready tools, at the hands of unscrupulous attorneys, in the perversion of real facts and accepted theories to their desired dishonest ends. Many physicians hold themselves in readiness for an alliance to that party, in a legal issue, which promises the greater compensation, and, when so allied, strip our profession of its hard-earned embellishments, in the moulding of well established truths into theories adaptable to the interests of their employers. Is it, then, surprising that the integrity of a medical witness and the sincerity of his testimony are so frequently questioned in the jury-room, when members of the same profession publicly, and under oaths of honour, antagonise one another to the broadest possible extent upon questions which, to laymen, appear as indisputable facts?

Let us hope that in the future deliberations of this honourable body, while enriching our qualifications for the duties at the table and the bedside, we shall entertain such considerations of the functions of the physician, as an expert witness, as will eventually elevate our noble calling to its merited pinnacle of integrity.

DISCUSSION.

Dr. John G. Truax, of New York county, said that the paper was one which should be thoroughly discussed. He had been an expert witness in almost all kinds of cases, and he had been very kindly treated by the legal profession of New York city. It was probable that the lawyers and judges in many parts of the country were not so considerate in their treatment of the medical witness.

Dr. Lewis A. Sayre, of New York county, said that he had had the melancholy misfortune of being called on several occasions, not as an expert, but as the defendant in suits for damages. One of his first and most unpleasant experiences occurred a number of years ago, and was of interest, as a ruling in the case afterwards became an important legal precedent. A young woman had been brought to his office for an abscess about the hip, which, however, did not involve that joint. Fortunately, several gentlemen were present at the time, and he directed attention to

ARCTIC OCEAN
Iceland
Bergen
Norway
Sweden
Finland
ESTSEE PROV.
GALIZ.
Astrakhan
HUNGARY
Cherson
Nizza
Krim
CAUCASUS
LISBON
Algarve
Algarve
Madeira
ALGERIA
Malta
Crete
TURKEY
Samarkand.
SYRIA
PALESTINE
PERSIA
MOROCCO
TRIPOLI
EGYPT
FEZZAN
ARABIA
INDIA
CHINA
Manchooria
Japan
Kamtschatka
Aleutian I'd's.
Minnesota
Canada
Greenland
New-Brunswick
New-York
California
MEXICO
Louisiana
Cuba
Hayti
Jamaica
Porto Rico
Guadalupe
Barbadoes
Trinidad
Guiana
Sandwich I's
PACIFIC OCEAN
Philippin.
Bombay
Madras
Ceylon
Malacca
Sumatra
Celebes
Java
Darf
SENEG.
UPPER GUINEA
LOWER GUINEA
EQUATOR
Seychele
Mozambique
Natal
Mauritius Isl'd.
S. Helena
AUSTRALIA
New South Wales
Victoria
New Zealand
INDIAN OCEAN
New Granada
AMAZON RIVER
Pernambuco
Bahia
Matto Grosso
Paraguay
Minas
S. Paul
Uruguay

the fact that the pus was not in the joint. The patient afterwards developed hip-joint disease, and two or three years afterwards a suit for damages was brought against him on the ground that he had been the cause of the disease, which subsequently developed, by puncturing the joint and destroying the child's vitality. Dr. Sayre went to court accompanied by Drs. Frank Hamilton, Van Buren, and Krakowitzer, and demanded that the child be examined at once with the view of determining or disproving the existence of a cicatri, which would indicate whether or no he had really punctured the joint as alleged. The lawyer for the plaintiff objected to this most strenuously, on the ground that it would be an infringment of "personal liberty," and the judge was inclined to sustain this view as there was no precedent. Dr. Sayre told the court that in his childhood he had read in a book about a certain man named Adam, and he wanted to know, if that gentleman had had a lawsuit, what precedent he would have had to guide him. Dr. Sayre further urged that the examination should be made immediately, as he wished to know the *present* condition of the patient. Finally, Judge Jones allowed the physicians, already mentioned, to examine the child, and they readily ascertained that the joint had not been punctured. This ruling of the court had formed a precedent which had been of great benefit. Dr. Sayre closed the narration of this experience with the remark, that although the verdict of $20,000 damages had been rendered in his favour instead of for the plaintiff, the judgment had never been of any benefit to him, as he had been unable to secure its execution.

Dr. Morris W. Townsend, of Genesee county, remarked that although this precedent might be the guide in medico-legal procedures in the city, it was not so in the country.

Dr. Darwin Colvin, of Wayne county, said that he was surprised to hear this, for a recent decision of Judge Dwight had been in accordance with this precedent, and this is at no great distance from Dr. Townsend's locality. He had been many times accorded this permission, and the refusal of a lawyer to grant such an examination is liable to prejudice his case.

Dr. Joseph C. Greene, of Erie county, added that it was no uncommon thing, in Buffalo, for judges to decide that patients should be examined by medical men.

Dr. Truax said that a case in his experience might be interesting in this connection, as it was probably the last decision that had been rendered by one of our higher courts. The plaintiff was a girl, who, about two years ago, was injured on one of the street-cars, the injury having occurred about two weeks before she was seen by the speaker. He had

found her suffering from a pelvic cellulitis and salpingitis, which has existed until the present time. She sued the railroad company for $30,000 damages, and when the question arose as to whether the medical experts, representing the company, should be permitted to examine her to ascertain whether or not she was actually suffering from the condition alleged by her, the court decided that she could not be examined without her consent, and so she never was examined.

Dr. Robert C. Davis, of New York county, said that he was at present engaged in two cases, one of which promised to be of considerable importance, and although he had been permitted to examine the patient before the trial, the permission to do this was not given without some dispute as to its propriety. He saw no way of avoiding the unjust ridicule of lawyers except refusing to answer questions, and he hoped those who followed in the discussion would indicate more definitely what course should be pursued under such circumstances.

Dr. E. D. Ferguson, of Rensselaer county, thought that, on the principle of personal liberty, no court would order a personal examination of the body of a patient as a condition of the case appearing or remaining in court. Dr. Colvin had touched upon the main point at issue, when he referred to the fact that when the plaintiff declines to allow such an examination, he may create a prejudice against himself in the minds of the jury. It is certain, however, that such a refusal would not prevent the presentation of such other evidence as the plaintiff had.

Dr. Edward M. Moore, of Monroe county, had been on the witness stand a great many times; and as he was here to-day to avoid a subpoena, he wished to make a remark confirmatory of what the writer of the paper had said with reference to the great necessity of not appearing to be an ex parte witness. This was the difficulty with most physicians, who seemed to forget that they were called by the court, and not by either side. Another very practical point had dawned upon him a great many years ago, in consequence of seeing the absurd positions into which physicians were often drawn by attorneys. It was this: Endeavour, if possible, to have a consultation with all the physicians subpoenaed by both sides before the trial. This almost uniformly results in removing the sharp asseverations, which will otherwise lead them into error and bring the profession into an improper position before the public. He had instructed his two sons, who are physicians, particularly upon this point; and, as a result, the first time one of them came upon the witness stand, there was such a general agreement among the physicians summoned to the case as to astonish the attorneys who brought the suit. It also assists in presenting the case with greater clearness and precision to both judge and jury.

He recollected having heard, while a medical student in Philadelphia, a number of anecdotes about old Dr. Physick, who at that time was just passing off the stage of active life, and one of these had an important bearing upon the subject at present under discussion. Dr. Physick had been called as a witness with reference to the treatment of an eye. He was asked questions like this: "What is good for an inflamed eye?" "I do n't know," he replied. That is the key to a good deal; yet young men do n't like to say it. Say you do n't know, and say it easily. The peculiarity of the medical profession is, that they know a great many things—but only a very little way. The lawyer said to Dr. Physick—'What! do n't know how to treat inflammation of the eyes? You have treated them many, many times, have you not?" "Yes, sir." "And do n't know?" "No, sir." At once the lawyer was brought to a stand; he had met a man who was not afraid of him. "I do n't understand you, doctor," he said. "State to me the case you have in mind," replied Dr. Physick, "and I will tell you what I think you ought to do for it; but to put your question in that broad way means nothing at all." Lawyers put their questions in this general manner for the very reason that they do n't know anything about it themselves. A child can read enough in books in a few minutes to enable it to ask some very puzzling questions.

Dr. Townsend said, that when the rules governing legal procedure became fixed, men could behave as Dr. Moore had indicated, and sometimes even now, but not always. He wished to give a few illustrative cases. An irregular practitioner of medicine, in western New York, who had been tipped out of his wagon, claimed that he had sustained concussion of the spine, and the speaker had been summoned as consultant, just previous to the trial, about which, however, he knew nothing. When he arrived at the patient's house, he was kept waiting for some time, and when he entered the room, what he saw and smelt there led him to believe that the patient had been inhaling nitrite of amyl for the purpose of affecting his circulation. He was a pretty fair malingerer, and tried hard to make Dr. Townsend believe that he had had concussion of the spine, and was not able to walk even with the aid of crutches. He was assisted by four medical men in the presentation of his case. The speaker had examined his lungs a long time previous to this examination, and, finding him suffering from phthisis, had given him a certificate of disability at the time of the last draft for the civil war. Hearing that the case was to come to trial, Dr. Townsend came to New York city for a week, but, on his return, he was summoned to appear. A fierce legal contest ensued. On the witness stand, the counsel asked him how long the plaintiff was going to live, and the judge ruled that he should answer. The examining lawyer was ignorant of physiology, pathology, and all the other "ologies," and the witness was commanded by the court

to put his whole answer, diagnosis, and everything else into the language of a cow-boy. After the trial, Dr. Townsend learned that the judge had ruled in that way, in order that plenty of rope should be given to the plaintiff, lawyer, and witness.

In another case, in which two equally competent medical men were allowed to make an examination together, they were unable to agree. What was to be done in such a case? In another case, he had seen a witness on the stand with a wounded hand, but the court would not even allow him to stretch it out for the medical men present to look at. The last case in which the speaker had appeared as a medical witness was in the case of a man, who, while riding slowly in a low cutter over snow one foot in depth, was overturned. It was proved by medical testimony that five ribs were fractured, and that this was followed by pleurisy with extensive effusion, and that this was followed by contraction of the thorax and all the usual sequelae; and yet the court ruled that the man should not be compelled to pull off his coat and subject himself even to inspection. This was in Genesee county.

In another case, a man swore that his knee was anchylosed, and yet he got out of the witness box without an examination, and, after the decision had been rendered in this case, walked out of the village without the aid of cane or crutch, and without any limp. It was on account of these cases that he asked about the publication of Dr. Sayre's case, for it did not seem to be considered as a precedent in his part of the State.

A CASE OF DOUBLE CONGENITAL DISLOCATION OF THE HIP.

Extemporaneously presented by W. C. Wile, M. D., of Connecticut.

October 23, 1890.

Dr. Wile said that four years ago, while in Europe, he called upon Mr. William Adams, with a letter of introduction from Dr. Sayre. Mr. Adams told his visitor that he wished to show him a case of such rarity that if he lived to be one hundred years old, and followed his present line of practice,—that of general surgery,—he would probably never see another. His curiosity was naturally aroused at this, and he found that the case referred to was one of double congenital dislocation of the hip joint, upon which Mr. Adams had written so ably. At that time, Mr. Adams said, there were only four cases on record, besides his own, which had been diagnosticated and treated. The speaker said he was not aware how many such cases had been reported since that time. The case which he desired to report was that of a girl of ten years, who came to him about two months ago with a peculiar gait, which examination showed to be due to double congenital dislocation of the hip joint, with double lateral curvature of the spine. Of course, in a case of this kind, the advantages of any particular treatment were almost nothing. Mr. Adams has had two cases which have been markedly improved by treatment with traction in the horizontal position, but even in his successful case it took about five years in the recumbent position. In the case just reported, the girl was feeble, poorly nourished, and would not, in all probability, survive such prolonged confinement.

Dr. Wile said that these cases were so rare, and of such interest to both the general and the orthopaedic surgeon, that he felt constrained to report it, and, at the same time,

present a series of four photographs of the patient to the Association. The most, he thought, that could be done for the patient was to relieve the lateral curvature. It was rather remarkable that such a grave deformity should have existed for ten years without being diagnosticated.

DISCUSSION.

Dr. L. A. Sayre, of New York county, said that he had always objected to the use of the term *dislocation* in these cases, because, so far as he had seen, there was a defect in the formation of the joint, and he contended that a thing must be *located* before it could be *dislocated*. There was an arrest of development in the three bones forming the acetabulum, allowing the head of the femur to slide up, causing a *displacement* of the bone, but not a *dislocation*. He did not believe if a joint were properly formed in utero, the foetus could, by any kind of antics, dislocate it.

Dr. Baker Brown, of Boston, had had the first successful result in the treatment of this condition, by direct extension in the horizontal position for two years, and Adams had recently done the same thing. One or two authors had suggested quite lately the bringing together of the parts so as to secure anchylosis, but he could not say what would be the result of such treatment. He had seen some good results from holding the parts in place for many years by suitable mechanical appliances, but he had been afraid that the long continued confinement, necessary in Dr. Brown's method, might have a deleterious effect on the general health.

HERNIA: THE ANALYSIS AND TREATMENT OF ONE HUNDRED CASES OF ADHERENT, IRREDUCIBLE, INCARCERATED, AND STRANGULATED HERNIA.

By S. E. Milliken, M. D., of New York County.

October 23, 1890.

It having been my fortune, or misfortune, to have observed and treated recurrent cases of hernia after every recognised operation that is being performed at the present day, I thought that the clinical analysis of a series of the more complicated forms of hernia might be of some interest to the Association.

There were treated in my service at the Hospital for Ruptured and Crippled, during the year of 1889, three thousand eight hundred and fifty-eight cases of hernia, including the four most common forms, viz., inguinal, femoral, umbilical, and ventral. Out of this number, I feel safe in saying, fully two hundred were complicated by either adhesions, incarceration, or strangulation. From the fact that data regarding the results to hospital patients are not always easy to obtain, I have decided to content myself with the consideration of one hundred cases. The history of incarcerated and strangulated hernia is too well understood by every physician to call for a repetition here.

But of those cases where a slip of omentum is adherent to the sac, or to the graver state when the contents have become wholly irreducible, their description, diagnosis, and treatment will, I think, be found to be not altogether without interest.

That an adherent or irreducible hernia may exist for some time without any inconvenience to the patient, the following case shows:

Case I. On September 24, 1890, John E., aet. 48 years, was referred to me by Dr. John C. Schapps, of Brooklyn, with a history of swelling in the right groin for five weeks, which had not given any pain or shown evidences of increase in size. The patient had not endeavoured to reduce the mass,—only using an ointment, thinking it was an enlarged gland.

On examination a right femoral epiplocele the size of a walnut was found. It was apparently irreducible with ordinary manipulations: almost no inconvenience was felt. A very snug hip spica was applied, with a pad made of a cheese-cloth roller bandage. The patient was seen again in twenty-four hours, when a new spica and pad was applied, he having done his ordinary work, that of a machinist, since his first visit. The bandage was changed every other day afterward, and moderate taxis used each time. The whole mass was reduced at the end of seven days, and a truss applied.

Case II. This case, so far as the previous history is concerned, differs greatly from the above. Mary W., aet. 60 years, called at the Hospital for Ruptured and Crippled, July 15, 1889, giving a history of right femoral hernia of three years' duration. It had been frequently incarcerated, no truss being worn, nor had she consulted a physician. The last attack of incarceration was two weeks ago. The hernia at present is the size of a hen's egg, about one half reducible, and quite sensitive to the touch. A truss was fitted, but not applied, and the patient was instructed to take a warm bath, keep hot fomentations to the part until reduced, when the truss would be adjusted.

July 17. Patient wearing truss with comfort, no tenderness on manipulation, but a small adherent mass of omentum remains out.

August 14. The hernia is completely reduced.

Of the one hundred cases under consideration, forty-one were inguinal,—twenty-four right, sixteen left, and one double; thirty-eight were femoral,—twenty-nine right, nine left, and two double. The remaining twenty-one were umbilical.

The inguinal form being far more frequently met with, one might expect to find more cases of adherent inguinal than of adherent femoral hernia. Such is not the fact, however, and I think it can be accounted for in two ways:

1. The natural disinclination or timidity of women to being examined, allowing even an inguinal hernia to become adhered.

2. Femoral hernia, not tending to increase in size very rapidly, is therefore not diagnosticated until a slow inflammatory process has taken place.

These two explanations are made more clear when we observe that sixty-six of the whole number were women and only thirty-four were men.

Again: Inguinal hernia is met more than five times as often in the male as in the female, and we find thirteen women and only twenty-eight men.

Of the femoral cases, only four out of the thirty-eight are men.

In the various statistical papers I have looked over, femoral hernia before twenty years of age is about one per cent.

The following case will also show its liability to adhesion:

Case III. Grace G., aet. 6 years, on July 29, 1890, was brought to me presenting a right femoral hernia, that had existed about a year and a half. A truss had been worn for the past four months, but the hernia was the size of a small egg. A slip of omentum could be felt that was adherent. A new truss was applied.

August 14. Truss in situ, the omentum still present.

October 9. No sign of omentum: truss worn with comfort.

Diagnosis.—The most important rule to be laid down in the diagnosis of hernia, whether reducible or incarcerated, is that the patient should first be examined in the upright posture, and a thorough history as to the duration and acuteness of the symptoms should be secured.

It has been the misfortune of the writer to learn of a hernia being reduced by a physician after stercoraceous vomiting had existed for some hours, with all the local signs of strangulation, and an elevation of temperature. It is almost needless to say, that while the reduction of the hernia might have been never so successful, I have grave doubts as to the welfare of the patient under such circumstances.

Case IV illustrates not only the importance of a correct diagnosis, but also the necessity for an early operation. William S., aet. 73 years, real estate agent. History of left oblique inguinal hernia for fifteen years, truss worn regularly. Irreducible nearly twenty-four hours, without any symptoms other than those of incarceration. Moderate taxis failed to reduce the viscus, and the patient was advised to go immediately into a

hospital, but having had the hernia previously incarcerated, he persisted in returning to his home. This was at 2 P. M., and the patient died with every evidence of strangulation, the next morning, at 8 o'clock.

The diagnosis of strangulation was made by the coroner.

Omentum and thick sac.—The differentiation between a small piece of omentum and a thickened sac is sometimes very difficult, and it is especially so in women, or in men where a femoral hernia exists. In case of adherent omentum in inguinal hernia that has the slightest tendency to become scrotal, when the adhered part is reduced it carries the cord structures with it, and can be reproduced by traction on them.

Hydrocele.—An encysted hydrocele of the cord may be distinguished by aspiration, or, when the sac is not distended, a certain thrill is produced when it slips through the fingers. The most characteristic feel that I can give for omentum in small quantities is that of fine bits of fat, *i. e.*, just appreciably nodular when passed between the fingers. Enlarged inguinal glands occasionally are difficult to distinguish from irreducible omentum, especially if covered by a thickened sac. A hernia in such a condition will have existed weeks or months without much, if any, change in size. On the other hand, the enlarged glands are more acute. If more than one gland be involved, the diagnosis is very clear.

Treatment.—The mechanical treatment of adherent, irreducible, or incarcerated hernia must at first be decidedly palliative, and it was with this idea that I began the use of a hip spica. The most commendable feature in the use of the spica is, that any desired amount of pressure can be obtained without producing such inconvenience as to necessitate its removal by the patient, and hence the reappearance of the hernia.

If the parts be very sensitive at first, the spica is applied without any pad, and at future dressings the pressure is increased by the size and consistency of the pad. This is held in place by safety pins, and readjusted every two or three days, depending on the snugness of the bandage.

If any benefit is to be obtained from this treatment, from one to four weeks should be a sufficient time in an ordinary case.

This is shown by the following case, which I saw with Dr. Mary E. Herrick, of this city, on August 14, 1889:

CASE V. Mary M., aet. 31 years. Right femoral hernia the size of a small egg, that was first observed by the patient six weeks before. I advised a spica and pad to be applied, which was worn for nine months without the slightest reduction.

May 22, 1890, I operated upon the case, excising the mass of omentum and the sac, and attempted a radical cure by suturing the margins of the opening.

June 23. Patient at work, with a light truss on.

In the thirty-five cases treated by pad and spica, seven were completely reduced, twenty-two were able to wear trusses with comfort, and six had operations subsequently performed. This shows comparative comfort for over eighty per cent., and complete reduction of one in five.

Trusses.—Of the sixteen cases of inguinal and femoral hernia to which trusses were applied, at the first visit five were completely reduced and retained, six of them were made comfortable, and five continued to have difficulty with the truss.

As an illustration of the amount of pressure irreducible omentum may be subjected to, I offer,—

CASE VI. Charles M., aet. 5 years. Right oblique inguinal hernia, two years' duration; truss worn without much care. A completely irreducible mass of omentum is present, with truss in position. Fourteen months later, no protrusion takes place when patient coughs without the truss, although the irreducible omentum has not become any smaller.

Umbilical hernia.—All of the twenty-one cases of umbilical hernia had belts applied, and, with one exception, have been made comfortable. This class of cases being so easily relieved by a proper fitting abdominal supporter, regular visits from them have been difficult to get. The one exception had such a large ulcerated area over the hernia that the pressure of

the belt was unbearable, and the radical operation was performed.

Taxis.—In but one of the twelve cases reduced by simple taxis, or by taxis combined with rest in bed after a hot bath or hot fomentations, did an anaesthetic have to be administered.

Daily manipulation of adherent hernia, even after months have passed, will sometimes be successful in reduction.

Case VII. On April 9, 1890, I examined J. M. M., aet. 78 years, retired merchant. He gave a history of right oblique inguinal hernia of seven years' duration, and, although a truss had been worn constantly, the hernia had never been entirely retained. Among others, the Elastic and Marsh truss had been worn. The latter style was bound in position, with an omental hernia the size of an orange apparently irreducible. Just here I wish to state that the pressure of the spring was so great that the patient had diminished power in the right lower extremity. A truss was applied that made the minimum amount of pressure, yet sufficiently strong to prevent any further prostration, and I advised manipulation of the parts morning and night.

May 9, thirty days afterwards, the whole mass was reduced without ether, and with almost no inconvenience to the patient.

Operation.—The operative treatment I shall not presume to discuss, for two reasons, viz.:

1. The number of operative cases being but fifteen, and only five of them having been performed by myself.

2. This part of the field has been so recently gone over by Dr. Bull in a report of one hundred and thirty-four cases before the Association of American Surgeons, at their meeting in Washington in May last, and which was subsequently published in the *Medical News* of July 5, 1890.

Of the ten cases, Dr. Bull operated upon seven and Dr. B. F. Curtis upon three.

Eleven of the fifteen operated upon were irreducible, three were incarcerated, and one was strangulated.

Of the irreducible, seven were inguinal, three femoral, and one umbilical.

The three incarcerated were all inguinal, and the only strangulated case was femoral.

Operation advised.—The eight cases in which operation was advised, but not consented to, have been the most difficult to keep track of.

The only death that was ascertained has been alluded to in the first part of the paper.

Conclusions.—The most frequent causes of irreducible and adherent hernia are,—

1. Lack of observation on the part of the patient.
2. Insufficient trusses.
3. The natural tendency of certain forms of hernia, especially femoral and umbilical, to become adherent.

Irreducible hernia may have existed for many years without any inconvenience to the patient,—in fact, the patient may not be conscious of having a hernia. However, at any time the contents, usually omental, may take on an inflammatory process, giving great discomfort, and may go on to strangulation.

Palliative treatment is first advised in every case, with an endeavour, first, to give relief, and subsequently to secure reduction. For this means a simple spica bandage with a soft pad has been most highly successful. Should this fail, operative proceedings can be considered.

DISCUSSION ON OBSTETRICS.

QUESTION I.

HOW MAY THE PRESENT PROPHYLACTIC MEASURES IN OBSTETRICS BE MORE EXTENDED AND APPLIED?

QUESTION II.

IS THE PRESENT TECHNIQUE, IN THE MANAGEMENT OF LABOUR AND CONVALESCENCE, IN ACCORDANCE WITH SOUND PHYSIOLOGY?

QUESTION III.

TO WHAT EXTENT HAVE THE SURGICAL MEANS OF TREATMENT OF LABOUR COMPLICATIONS BEEN SUCCESSFUL? OR, SHOULD THESE COMPLICATIONS AND THE PROCESSES OF REPAIR HAVE BEEN MORE GENERALLY LEFT TO NATURE?

QUESTION IV.

WHAT INFLUENCE WOULD A MORE ADVANCED OBSTETRIC SCIENCE HAVE ON THE BIOLOGICAL AND SOCIAL CONDITION OF THE RACE?

INTRODUCTORY REMARKS ON THE PRECEDING QUESTIONS.

By S. B. Wylie McLeod, M. D., of New York County.

October 23, 1890.

As a science, obstetrics cannot claim a very ancient origin, unless the offices suggested by kindness on the part of the

first man for his suffering wife in labour should be considered as its introduction. As an art, advances have been made in equal step with the other branches of medicine, and with the other arts. Dentistry, orthopaedia, and reparative surgery are so far in advance. They are so usefully applied, and the results so speedily follow, that many operations are not only tolerable but pleasant, the long periods of mental and physical suffering involved in the surgical operations of former times being now replaced by placid sleep and quick relief. Unlike the practice of medicine, where the result is long in coming and the changes toward recovery so obscure, obstetrics gives results like the other branches of our profession to which we have just referred. It is most conservative as a science; it is preëminently progressive as an art. The conservative teaching is, that nature is admirable in its adaptation to parturition; that art, guided by the knowledge acquired by quiet observation, seeks to restore what has been disturbed by improper sanitary surroundings, and the ill influences attending—or, rather, the abuse of—an advanced civilisation.

The general tendency of the midwifery of the present is to prophylaxis,—such treatment as arrests advancing processes which would terminate in difficult or complicated labour. The induction of premature labour is eminently a conservative and prophylactic operation in the prevention of convulsions; in warding off death from aneurism or advanced phthisis; in certain grades of pelvic deformity; in placenta praevia; in the habitual death of the foetus; in certain diseases of the pregnant woman, as Bright's disease, or pernicious anaemia; in diseased conditions aggravated by pregnancy, as severe dyspnoea; in uncontrollable vomiting; an operation in the interest, sometimes of the mother, sometimes of the child, at other times of both. Still further in the interest of prophylaxis, the effort has been made to reduce the size of the child by giving suitable diet to the mother in the later period of her pregnancy. Prochownick reports three cases where premature labour and craniotomy had been repeatedly

performed, dead children in each being the result. He succeeded, by dieting, in saving living children—very lean, but otherwise healthy. This is recorded in the Medical Annual for 1890.

They were cases of contracted pelvis. Means of increased traction have been used as a substitute for the forceps. The obstetric harness and Duke's belt, with similar appliances, are intended to save the often bloody forceps operations. Milne has classified monstrosities, and advised treatment for their prevention. We believe that the cause of these is little known, but it may be that the careful student of embryology will one day solve the problem of their prevention.

Septicaemia has been the scourge of lying-in hospitals and of private families, but now the use of antiseptics has largely removed it. It is claimed by some that septic fever has been reduced to a minimum, and that there is a prospect of its annihilation. One author says,—"In order to avoid the occurrence of puerperal fever, the gravid woman is entirely dependent on her physician." We cannot subscribe to this opinion, because we believe that, no matter how much care is exercised and how much antiseptics are used, there will still be cases of this disease lingering in the pathway of the most advanced treatment. Notwithstanding the general approval and adoption of them, there are still many who hesitate as to their use. The plea of Cullingworth for the more general adoption of antiseptics in midwifery, and his teaching that puerperal fever is a preventable disease, are necessary and timely. The adoption of asepsis instead of antisepsis is desirable, and is another evidence of the value to be placed upon prophylactic treatment.

There are other matters in prophylaxis which might merit a place in a paper of this kind, but must for the present, and except by reference, be omitted.

Preventive medicine we believe to be the highest development of the science. It is only in imagination that we would attempt a description of the results of its application. Thus appreciating it, we propose the first question to you, viz.,

"How may the present prophylactic measures in obstetrics be more extended and applied?" Prof. Winckel has written that ninety-five out of a hundred births occur in such a manner that nothing more than a certain amount of care is necessary, and there is no need of interference; and gives as proof of this the fact that in Saxony, in 1878, the statistics of private practice showed that only 4.9 per cent. required the interference of the physician. "At the Hotel Dieu in Paris, under direction of Madame Lachapelle, only 1.7 per cent. were ended by artificial means, and 98.3 per cent. occurred spontaneously." What is the *care* required? What is the *assistance* called for? What is the *interference* justified? These are questions which we all ask in every case of labour, and on our judgment often depend the comfort, the safety, and the future health of the patient. We therefore do no not hesitate to-day to offer for your consideration the management of normal labour. Such questions as these are engaging the attention of the practitioner and of the medical writer. The support of the perineum is the subject of much consideration; also, the position (dorsal or lateral) of the patient in labour, and the use of the bandage—its *non*-use having advocates not a few. In several institutions the knee-breast bandage is used to restrain the motions of the lower extremities in cases of very slight perineal laceration, and at the same time to compress the breasts. This, with position on the back and the use of antiseptic dressings, confines the patient in an almost helpless condition. The frequency of examinations and the time of interference must be left to the best judgment of the individual practitioner. The character of the pains should be carefully watched, for in this way only can "corrective contractions" be appreciated as they are changing foetal position.

The new born child should be kept under observation of the attendant, not left to nurse or friends: sickness, sudden death, and mistaken diagnosis, we fear, often result from allowing it to be taken from the room. Milk in the breasts of the new born is often the occasion of pressing, as a remedy,

and the formation of troublesome abscess. Sudden death occurs by suffocation from too much covering. A case of sudden death is reported, where an autopsy showed that the larynx, trachea, and all the bronchi on the right side were filled with milk: heart and brain were normal.

It is to be feared that haemorrhage from the genitals is sometimes mistaken for haemorrhage from the cord, and the child lost for want of appropriate treatment. In regard to the position of the patient in labour, it is often better to let her take her own posture; but if her instinct does not seem to guide her, select it for her, and determine for her the proper direction of her efforts. In thus presenting this subject, we know that each practitioner has his own peculiar methods, but an interchange of views in a meeting like this is calculated to improve the general conduct of normal labour; and whatever be our peculiarities, let us subject them to the test of our second question, "Is the present technique, in the management of labour and convalescence, in accordance with sound physiology?" It is worthy of special attention, that while there are about one hundred and thirty medicines now before the public that are designated "new remedies," belonging to many of the classes into which the materia medica is divided, only a few of these (perhaps eight) are of use in obstetrics. Ergot as an oxytocic still remains without a successful rival. Cocaine, hydrastin, ustilago maydis, and various cordials, being combinations of others of this class, can only be regarded as in the experimental period. In appropriate cases of inertia, labour may be hastened, uterine sinuses closed, blood clots expelled, the womb kept contracted, and restful sleep obtained by proper medicaments; but it should not be denied that surgery is the factor in improvement, and that to the use of that department obstetrics is indebted for much of its present advance. The lacerated perineum is immediately sutured. The tear of ruptured uterus is sewed under antiseptic details with a fair prospect of recovery. The supposed ulcer formerly treated by medicine is recognised as a tear, and the gynaecologist performs trachelorrhaphy. In the

interest of both mother and child; laparotomy or Caesarian section, robbed of their former dangers, are becoming familiar operations.

Nature will repair; nature will eliminate; nature will overcome; nature will compensate. Let us trust to regimen and dietetics as well as to surgery and drugs. Let the limits of surgery and the *vis medicatrix naturae* be defined. We therefore propose the third question, viz., "To what extent have the surgical means of treatment of labour complications been successful? or, should these complications and the processes of repair have been more generally left to nature?" According to the late Dr. Austin Flint and the researches of Goulard, a large per cent. of women who suffer from phthisis contracted the disease during pregnancy, or shortly after labour. Flint says 11.5 per cent. of women under 40 years, who are affected by phthisis, developed the disease during gestation, and $13\frac{69}{87}$ per cent. soon after delivery. The cases are very exceptional where pregnancy has acted favourably on the progress of the disease. The feebleness and ill health of many females are dated to their pregnancy or parturition, and are many times the results of laceration, septic infection, metritis, and other intercurrent diseases. Pressure of the forceps, or long continued pressure in the passage of the child, are often the occasion of atrophy of the brain and permanent imbecility. There have been reported two autopsies upon idiots, in whom cerebral atrophy followed pressure by the forceps. Examination of the heads of twenty-five idiots showed in six the marks of pressure on both sides from the same cause. A case of atrophy of the optic papilla is also described. In 810 cases of idiocy, 35 were said to have been produced by the forceps, while 216 were due to prolonged or difficult labour. Sachs and Petersen, in a study of cerebral palsies of early life based on an analysis of 140 cases, came to the conclusion that traumatism is an important factor in the causation of meningeal haemorrhage during early life, and particularly during the act of labour. In regard to treatment they wish to repeat their warnings to obstetricians to hasten protracted

labour; for the skilful use of forceps and careful manipulation are less apt to do injury than the prolonged compression of skull and brain in the pelvic canal. The secondary conditions are epilepsy, idiocy, and contracture.

Many questions in *demography* are connected with obstetrics—marriage in its physiological and social relations, in its relations to criminal abortion, economical aspects of birth, and infantile mortality.

Many questions in medical jurisprudence also are reviewed by the obstetrician. Cases are on trial for removal of ovaries: epilepsy as a defence for crime. A novel case is recently reported of a child, by her guardian, suing for injuries sustained before birth. If such a case should be brought to trial, it must be one of great and novel interest.

During the last few years great advances have been made in embryology. Vivisection and other experiments upon animals teach of the beginning of life in man, and often indicate the means of improving the human race. May we hope that soon, by some such means as we have sought to describe, craniotomy on the living foetus will not need to be practised at all. From a consideration of well established facts it may be said that during the last few years a great amount of human suffering has been prevented or swept out of existence by improvements in medical science, and not less in obstetrics than in other departments. The enlightened spirit of the age in which we live has entered our profession, and our free institutions afford us the opportunity of reaping the fruits of our observations and experiments. May we claim for a more advanced obstetric science—phthisis reduced, septic influences restrained, brain diseases diminished, social conditions benefited, crimes (abortion) rendered more inexcusable, longevity promoted, and the race improved?

Then we may propose question fourth: "What influence would a more advanced obstetric science have on the biological and social condition of the race?"

Question I. How may the present prophylactic measures in obstetrics be more extended and applied?

By Ira B. Read, M. D., of New York County.

Between extremes there is always a golden mean. The dirt of the past and the grand army of bacillus destroyers of the present have, as practised by the extremists, a golden mean. Savage and untutored nations do not become extinct by reason of puerperal fever, nor do all of the present day die because of the amount of bichloride that is thrown into the gaping veins of the recently emptied uterus.

The question given me to answer is, How may the present prophylactic measures in obstetrics be more extended and applied? I should say that the strict answer to that question would be, By teaching all our students to take a Russian bath, having the hair cut and shampooed, and a new suit of clothes every time they were called to an obstetric case. With this teaching, let laws be passed enforcing the teaching.

On entering the room where his patient lies, the physician should, if he has touched the door knob, plunge his hands into a strong solution of carbolic acid or bichloride of mercury. Then let him have a steam atomiser at work casting a spray throughout the room, that will act like a Gatling-gun on any bacilli that may have come in, either out of curiosity or with fiendish intent. The bacteria have been dug from the finger nails, and thrown into the fire. Then, again washing hands and face in bichloride, he should be ready to make an examination,—when the patient tells him that the child is coming! The patient should either have a constant stream of bichloride thrown on the genitals, or have the nates immersed in a tub or vat fitted to the bed, full of the same material. If the child, when born, should swallow some of this fluid, it will at once kill any bacilli that it may have swallowed in the womb. No competent practitioner would allow the child to drown under these circumstances. If it is

a breach presentation, a cork should be placed in the anus to prevent the *meconii-cocci* from getting out too soon.

The douching or hip bath should be continued till the placenta is delivered; then a bichloride pad should be applied to the genitals and hermetically sealed, not to be opened except under like antiseptic conditions.

But I will not trespass on your time with these harrowing details. Do you think me frivolous? We have had as ridiculous teaching from high authority. What would *I* do and what would *I* teach? That is the question. It is the result of experience that we want, not theory. I would have everthing as clean as possible. The bedding and clothing of the patient should be clean and well protected. If soiled, I would have it changed. I would let no woman lie all night or half the night in wet, bloody garments or bedclothes. I would have the napkins changed frequently, but no bichloride on them. I would have my patient washed with warm water and made comfortable, and would have no fear of the results. If the lochia has any unpleasant odour at any time, I would wash out the vagina with a solution of bichloride not stronger than 1:5000. But supposing my learned friend should come along with his microscope, and find bacteria there! Did they get there and make the trouble, or did they find trouble there, and consider it a fine place to stop and feast? If you go into your dining-room after a long absence, and find a piece of cheese alive with maggots, do you at once exclaim, Look at the cheese these maggots made? Now, Mr. President, I do not wish to be thought frivolous or shallow. I believe that all the prophylaxis we need is strict *asepsis*. Cleanliness is next to godliness. As far as prophylaxis goes, we need not look further. My question does not touch on what is to be done after the trouble comes. But as a preventive, pure air, clean clothes, clean hands, clean water, clean surroundings will do as much good as if everything were soaked in and painted with bichloride.

Question II. Is the present technique in the management of labour and the process of convalescence in accordance with sound physiology?

By Wm. McCollom, M. D., of Kings County.

It is possible that my remarks may relate as much to the first question propounded as to the second one now stated.

In the higher civilisation of the woman of the present, physiological or fully natural labour is the exception and not the rule, and, consequently, physiological must frequently give place to pathological methods in the management of the lying-in period.

In order to determine the value of the present technique in the management of labour, it will be necessary to compare the former physiological method with the more scientific method of the present. That modern methods have done and are doing much to lessen the death-rate of parturient women will not be questioned.

Purely natural labour, as it occurs in the animal and in woman in her more primitive, vigourous condition, requires little artificial aid; but in the great majority of cases coming to our notice, efficient assistance must be rendered.

Are the present methods sound and sufficient?

Perhaps enough has been written and spoken relative to the lying-in, if the teaching could be generally and well understood and practised; but the lessons have not been well learned, and a larger portion of those engaged in private obstetrical practice are going on much in the old way, which accounts for the fact that in the large lying-in hospitals, where the newer scientific methods prevail, the mortality of puerperal women has been greatly lessened, and now falls considerably below the mortality outside of hospitals.

There is still a frightful mortality from child-bearing. Shultze estimates that of 1,600,000 women confined each year in the German Empire, 11,200 die, or about 1 in 144

women. Mathew Duncan, studying the same question a few years earlier, estimated the deaths in Great Britain, in hospital and private practice, at 1 in 120 confinements. The mortality in his own practice was 1 in 105. America, I think, cannot claim better results—a lower mortality. Then there are few questions in medicine of more vital importance than how this fearful death-rate can be lessened. When we remember the fact, that forty or fifty years ago the death-rate in some of the European hospitals ran as high as 8 to 10 in 100 cases confined, and that with advance in knowledge and improved methods it has been so largely lessened, we have reason for the hope and belief that much can yet be done in prophylaxis.

The report of Prof. Leopold, of the Lying-in Hospital of Dresden, made in 1887, where strict antiseptic obstetrics was practised, shows the great advance made from scientific methods. The first year's mortality, with reasonable antiseptic practice, was 1 per cent.; in the second year, 2-10ths of 1 per cent.; and in the third year, .0014 of 1 per cent., *i. e.*, only 14 out of 10,000 women had sepsis.

Progress has been very slow. About forty-four years ago, Semmelweiss, of Vienna, began the work of tracing the causes of puerperal or septic fever, and of devising means of preventing the same. The identity of puerperal fever with septic fever and pyemia was not entertained before that time. To him much credit is due for inaugurating a work yet far from being finished.

The scope of my remarks will not allow me to review what has been done, or to trace systematically the progress made in prophylactic measures. We should not lose sight of what has been discovered in aetiology and of preventive measures now well established.

Puerperal fever, using the term in its broad sense, is the chief cause of mortality in childbed; and efforts made to lessen the mortality must be directed largely toward preventing its occurrence and effecting its cure.

Let us remember that in advanced civilisation, labour and

the condition during lying-in are often not physiological, not natural in the sense of labour in primitive woman. Civilisation has brought with it numerous disturbing factors and influences, as to the habits of life, diet, dress, fashions, occupations, customs, and practices, which render the whole process of reproduction, in a large proportion of cases, abnormal to some degree. This fact is lost sight of by the many who look upon the birth of the child, the expulsion of the placenta, the contraction of the uterus, and the checking of the loss of blood as natural, and not to be interfered with except under the greatest stress of necessity. To such, antiseptics find no place as preventive means in obstetrical practice. They will wait until the maternal passages are filled with myriads of bacteria, and septicaemia or pyaemia is fully developed, then, perhaps, try to remedy a dangerous and often fatal condition, which might have been prevented.

If labour is more often abnormal than strictly physiological, it becomes us to inquire what we can do as scientific physicians to lessen the dangers of reproduction. Whatever we can do by advice to correct the pernicious, unnatural habits and customs of life which interfere with the best physical development of woman we should not neglect. Advise all pregnant women, and all women who seek advice and who expect to bear children, to abandon that abomination, the corset, from their earliest knowledge of conception, so that the abdominal muscles may develop and a tremendous power may be gained in the act of parturition, which will help to insure a natural, speedy labour, doing away with the necessity for the use of the forceps in many cases, and lessening the dangers of rupturing the cervix and perineum. Ruptured cervix seldom occurs in speedy labour, but often in protracted ones.

Too much pains cannot be taken to prevent maternal lesions during labour, as such lesions specially favour systemic infection.

During the pregnant period, much care should be taken as to hygienic and dietetic measures. Encourage active exer-

cise out of doors, an avoidance of much tea and coffee,—in short, an earnest effort should be made to put the nervo-muscular system in its best condition. More attention should be paid to the state of the alimentary canal, and in the last half of pregnancy the urine should be occasionally examined to determine renal sufficiency. It is very important to determine, if possible, when there is danger from eclampsia; and if albumen and casts appear in the urine, much may be done to avert the outbreak by effecting active elimination through skin, intestinal canal, and kidneys.

Lusk gives the death-rate in pregnant women from eclampsia, as contrasted with all other causes, as one to eight. The per cent. of fatality from this cause has been reduced about one half from former times, and it is fair to presume that the lessened mortality is the result of a better management prior to and during labour.

More careful supervision of the health and habits of life of pregnant women should be had in the more cultured walks of life,—of women lacking nerve and muscular power.

Women of the poorer class, accustomed from early life to much labour in gaining a livelihood, plain food, and dress of a style to allow the freest movements of the body, develop powerful muscles and efficient nerve power, so that delivery is more easily accomplished.

Labour has commenced, and we are summoned to conduct it to its termination. I shall not review the literature of the management of the parturient act, but shall only call attention to personal experience and practice as they relate to prophylactic measures in the prevention of puerperal fevers and disease incident to childbed. Antiseptic methods are, perhaps, as important in obstetrical as in surgical practice. When the woman is warned by regularly recurring pains that labour has commenced, she should take a warm or hot general bath, and the genital organs, with the surrounding regions, should be thoroughly cleansed with strong soap and water. In city houses with bath-tub and hot water supply I have observed the best effect from a prolonged hot bath in

the first stage. Not only is thorough cleansing effected, but the nervous system is soothed, a good circulation of blood to the surface results, with an influence upon the skin favourable to its eliminating function, with lessened likelihood of cerebral irritation and congestion.

The accoucheur should never neglect to disinfect his hands thoroughly with brush and antiseptics; and after a lubricant has been used, the hand should be again dipped into a solution of bichloride of mercury, 1 to 1000, before the finger is passed into the vagina; and this should precede every examination made during the labour and subsequent to it. Examinations within the vagina should be made only when absolutely necessary, both for the purpose of guarding against the introduction of germs into the body and the disturbance or removal of the natural lubricant, so essential in favouring the passage of the child through the parturient canal.

The vexed question of whether or not the perineum should be supported, and if supported, how best done, I shall not attempt to settle. In my own practice, I have not found it necessary to support the perineum in a large proportion of cases other than by position in bed, the woman lying well forward on her side at the time of the birth. I have occasionally felt it necessary, with vigourous spasmodic pain and wide, rigid perineum, to support by sliding the tissues each side of the perineum toward the centre, and pressing the head upward and forward so as to gain time for dilation. In strictly physiological labour, commonly the perineum can safely be let alone. When the head is born, make no haste to deliver the body and limbs unless necessary for the circulation of the child, since the presence of the feet and legs within the womb help to excite contraction and detach the placenta and complete the labour. Always avoid passing the finger into the vagina, when possible to avoid it, after the birth of the child.

The more modern method of expression of the placenta through the abdominal walls, if done strictly in accordance with the teaching of Credé, is to be advised. Providing the

placenta and membranes have been discharged, and the uterus well contracted without haemorrhage, the application of the napkin completes our duty in this direction; but in case instruments have been used, or the parts have been opened during placental extraction, or when uterine contraction is not good, with loss of blood too free, I always resort to the hot vaginal or uterine douche. I have often used the hot douche after normal labour to ensure firm uterine contraction and make the vagina clean, and I have never had cause to regret it. I believe it to be good practice, though perhaps not always necessary.

It is necessary to insure prompt and firm contraction and prevent loss of blood, for haemorrhage greatly increases the activity of absorption, and favours septic infection from toxic matter generated in the genital tract or introduced from without. To effect firm contraction, a drachm of fluid extract of ergot should be given. For a few days following labour, I have practised giving from four to six grains of sulphate of quinine daily, with one thirtieth of a grain of sulphate of strychnine morning and evening, when indicated by lack of firm contraction.

The labour is completed. Shall we apply the binder for abdominal and uterine support? This question has been argued *pro* and *con*. Sometimes it is unnecessary, and annoying to the woman; much more often essentially necessary, and contributing greatly to her comfort and well-being. In young women, with strictly physiological labour, with abdominal muscles well developed and firm, the binder is not important or necessary. The great majority, by reason of degeneration of muscles from habits of life, faulty dress, the constant use of corsets, which splint up the abdominal walls and weaken the abdominal muscles, require the use of the binder carefully applied. It is not a matter of fashion or education. The almost universal testimony of women, who have used the support in childbed, in its favour as contributing greatly to their comfort, is not to be ignored. Physiological reasons harmonise with woman's reason for its use.

The posture of women in bed after the completion of labour, with muscles relaxed, affords almost no support or steadying influence upon the uterus, and artificial support must come to her aid.

As to the position to be taken by women during labour, no definite rules can be given. Barbaric women, full of power and endurance, give birth to children out of bed without attempt to conserve vital force. Civilised women, from instinct and necessity, take different and more restful positions. Arbitrary rules for position in labour should not be made. The woman should be governed largely by her inclinations, unless good reason exists for prescribing posture, though suggestions and instruction are often necessary, as all know who thoroughly understand the mechanism of labour.

Is the practice of keeping women in bed nine days or more following labour in accordance with sound physiology? Prehistoric woman needed no such care. Barbaric woman and vigourous woman in the lower walks of life do much better, no doubt from early and frequently taking the upright posture, for drainage of the vagina and uterus by gravitation is greatly facilitated. The law of necessity favours them. In advanced civilisation all is changed. Physical degeneration brings with it dangers which must be met. Woman must be kept in bed during the lying-in period, must be nursed and cared for, though drainage of uterus and vagina is not favoured.

How shall we compensate for the greater danger of septic infection from lack of drainage owing to the recumbent posture?

Next in importance to effecting firm uterine contraction are hot irrigations after delivery, and antiseptic vaginal injections for a week or more following. At present it is not so much the fashion to use the daily douche as it was a few years ago, but to omit injections after labour not requiring operative interference until a suspicion that infection has occurred. Is it theoretically rational to wait until unfavourable symptoms appear? until septic infection is present when

we know that there is danger of such infection? to wait until the germs have entered into the connective tissue about the womb and cannot be displaced or destroyed by injections?

Is it not better to act on the assumption that there is danger present, and to use such cleansing and disinfection of the genital tract as will be likely to avert it? If this method of prophylaxis is harmless, it should not be neglected. The settlement of this question should determine our action.

The use of sublimate injections has proved toxic in some hands, and germs, no doubt, have been introduced into the body by the use of dirty old syringes in dirty old hands. If this important preventive measure cannot be carefully and intelligently carried out, it would better be omitted. With a clean, intelligent nurse present, a new syringe antiseptically treated and properly used, with boiled water containing in solution boric or carbolic acid or creolin and of a proper temperature (and this is a matter of importance, for if the water is not above blood heat, the douche, when freely used, may tend to relax further a uterus not firmly contracted), only good should result from vaginal irrigation and antiseptic cleanliness. It is better to use water sufficiently hot to stimulate contraction for the first few days. With a nurse not to be trusted to carry out the plan prescribed, it is better, perhaps, to rely on external antiseptic cleansing, and upon the antiseptic napkin, or the antiseptic pad which has proved so useful a prophylactic when carefully used.

The curetting of the uterus after systemic infection I have had no occasion to practice, and I should not curette until careful antiseptic injections had been tried.

I never have had a fatal case of puerperal fever in my practice; and for the last twenty years, since I have used vaginal and uterine injections, I have seldom witnessed symptoms of septic poisoning.

Question II. Is the present technique in the management of labour and the process of convalescence in accordance with sound physiology?

By Joseph William Stickler, M. D., of New Jersey.

Dr. McLeod has honoured me by asking me to join with youin the discussion of a very important question, given in connection with a paper the subject-matter of which you have had the pleasure of listening to.

This question, "Is the present technique in the management of labour and the process of convalescence in accordance with sound physiology?" is a most practical one, requiring a very careful and thoughtful answer, and yet one which will be answered by each individual in such manner as will largely coincide with his own experience and observation, based of course, to a greater or less extent, upon physiological truth. In order that we may, if possible, satisfactorily answer Dr. McLeod's question, let us be sufficiently patient to briefly review the physiology of labour, and consider the physiological indications of the condition immediately following it. We may then intelligently speak of the technique in the management of each process—labour and convalescence.

The physiological phenomena of labour are,—

1. Contractions of the uterus and abdominal walls.
2. The dilation of the cervix.
3. The bloody discharges.
4. The formation of the bag of waters and its rupture.
5. The dilation of the vulva and the distension of the perineum.

Uterine contractions obtain from the beginning to the termination of pregnancy, but, as a rule, unnoticed or uncomplained of till just before the delivery of the child.

When uterine contractions of genuine parturition occur, the pains which accompany them are in most instances severe—the intensity of the pain becoming more and more pronounced as labour advances, the length of the intervals between them

being inversely as the process of labour. The pain becomes almost continuous during the stage of expulsion.

These contractions are wholly involuntary, for by exercise of the will they can neither be originated nor suspended, retarded nor accelerated. The emotions may to a certain extent affect them, but any influence thus exerted will be of temporary duration. The average duration of a labour pain is about one minute.

These contractions cause pronounced changes in the condition of the uterus. This organ becomes firm and hard at the time of contraction, flaccid and yielding during the interval. It also undergoes change in shape and position. By an elongation of its antero-posterior diameter and the shortening of its transverse diameter, the uterus becomes more or less cylindrical in shape. This elongation is most complete after the escape of the amniotic fluid. The change in position consists in the movement forward of the uterus, so that its fundus comes in contact with the anterior abdominal walls. In the interval between the pains, the organ is ovoid in shape. The round and broad ligaments being in direct continuity, structurally, with the outer muscular layer of the uterus, contract simultaneously with it, the broad ligaments holding the uterus at the pelvic brim, while the round ligaments incline the fundus forward.

The contraction of the abdominal walls is a powerful supplementary aid to the uterine expulsive action. Early in labour the contractions are entirely voluntary, but later they become almost involuntary because of their reflex character. The manner in which this auxiliary help is furnished is as follows: At the time of the greatest intensity of pain the fundus of the uterus is elevated, pushing before it the abdominal walls; the patient takes a full inspiration, the glottis closes, and the diaphragm contracts. All the expiratory muscles then contract with great power, the trunk being fixed by the patient, who finds points of support for her hands and feet, and thus the capacity of the abdominal cavity is diminished, and the uterus and all the abdominal viscera are

compressed by the abdominal muscles. The result is, that intra-uterine pressure is increased, and a hyperaemia of the vagina and contiguous tissues produced. This in turn results in an infiltration of the channel of delivery with serum, the passage of the child being thus facilitated.

We next consider the physiology of the dilation of the cervix. The fundus and body of the uterus are principally composed of longitudinal muscular fasiculi, beneath which may be found transverse fibres. Both these layers of fibres pass from one side of the uterus to the other, making of that organ a muscular sac whose predominating fibres are longitudinal in direction. Their action will be from above downward and transversely, diminishing the uterine capacity longitudinally and transversely. The cervix is made up chiefly of circular fibres, to which the longitudinal fibres of the body are attached. As soon, therefore, as uterine contractions occur, the longitudinal fibres are shortened, and traction is made upon the circular fibres. Of course this traction will eventually overcome the resistance of the circular fibres of the cervix, and a dilation of the os will result. As this dilation is a slow process, the normal cervical orifice preserves its circular form throughout labour. If, on the other hand, the cervix be the seat of old cicatrices or pathological degeneration, dilation takes place at the expense of the healthy part of the cervix. When the anterior lip becomes confined between the symphysis and the head, it sometimes swells to such a degree that it acts as an obstacle to the complete descent of the head. When the dilation has reached a diameter of three to three and a half inches, the protruding membranes remain tense, and are ready for rupture. Almost immediately after the escape of the waters, the head enters the cervix, the walls of which become so widely dilated that cervix and vagina form a continuous canal. Should the membranes rupture prior to complete dilation of the cervix, the head descends and acts as a dilator.

A few words in relation to the bloody discharges will suffice. During pregnancy the cervical and vaginal glands are

hypertrophied, and as a result their secretions are increased. This glandular out-flow increases as pregnancy advances. When the cervix is about to dilate, the mucus which has been retained within the canal escapes, together with the vaginal secretions and generally more or less blood. In relation to the bag of waters and its rupture, it may be said that the membranes, which are distended by the amniotic fluid and protrude through the more or less dilated cervix, constitute the so called "bag of waters" As soon as the cervix has been sufficiently dilated to permit the membranes to pass into its orifice, the bag may be said to have formed. During the pains it is tense and prominent; in the intervals between the pains, it is soft and flaccid. In head presentations it is usually spherical or hemi-spherical in shape; in trunk presentations frequently oval, and in pelvic presentations cylindrical. It is sometimes compressed, having a basal pedicle. The bag may be double, as in twin pregnancy, or the membranes having been ruptured, a second "bag" forms. It sometimes happens that the umbilical vessels ramify on the membranes. In such cases, rupture may be fatal to the foetus by causing uncontrollable haemorrhage. As a rule, the membranes rupture when they are imperfectly supported by the cervix, and are rendered tense by uterine contraction. Such spontaneous rupture may be prevented, or greatly retarded, by the thickness and strength of the membranes, or by their very great elasticity. Spontaneous rupture is usually caused by the first expulsive pains. It may occur from twelve to twenty-four hours before labour. Labour is generally hurried by a spontaneous rupture of the membranes, although it may be delayed several hours.

We now come to the consideration of the dilation of the vagina and the stretching of the perineum. When the head passes through the cervix, it begins to dilate the vagina by passing slowly through it, the enlargement of the upper portion being accomplished much more rapidly than that of its lower or anterior portion. This is especially true concerning primiparae. When the orifice resists for some time—two or

three hours or more—it suffers small lacerations when the head finally passes through it. The head having thus passed the pelvic outlet, and being covered only by the soft parts, it bulges the perineum outwards, a portion of the head making its appearance at the vulva. Each uterine contraction causes the head to advance, putting the perineum upon the stretch, retreating as the pains subside. Thus the head advances and recedes, till finally the perineum becomes so thin that the cranial sutures may easily be felt through it. This gradual dilation or stretching of the perineum continues till delivery of the head is accomplished, either with or without laceration. Should the perineum remain entire after the delivery of the head, it is very liable to be lacerated by the passage of the shoulders and trunk, on account of their greater breadth and somewhat rapid expulsion.

Granting the foregoing to be the true physiology of labour, perhaps it will be wise to outline a mode of management consistent with such physiology. Each accoucheur may then compare such a method with his own, which will vary somewhat from all others, and thus a satisfactory answer may be arrived at.

Determine the position of the child.

Note foetal movements.

Determine the condition of the vulva and perineum ; length of vagina ; degree of cervical dilation and softening ; the state of the bladder and rectum ; the amount of secretion in the cervix and vagina, and, if possible, the amount of amniotic fluid.

Note carefully the character of the pains. If frequent, strong, and well sustained, we may prophesy a comparatively quick delivery.

During labour's first stage, examine patient at hourly intervals to determine the progress of dilation.

In case of retention of urine, use either the straight female catheter, or, preferably, the English flexible catheter.

Rid the rectum, by enema, of any faecal matter it may contain. Keep the patient in the sitting or upright posture till the latter part of first stage: then she should lie down.

"Bearing down" during the first stage is not advisable.

After the patient takes to the bed, draw her night-dress up under the arms, and wrap a "protector" (any absorbent material) about the hips.

If the membranes do not rupture spontaneously when the cervix is well dilated, puncture during a pain when the membranes are tense.

During the first stage do not push the uterus backward by the use of a bandage, as its normal position is in contact with the anterior parietes of the abdomen.

At the beginning of the second stage of labour, allow the patient to choose her own posture. The left lateral is the best one for the accoucheur. If the advance of the head is regular, interference is unnecessary. Should the head remain fixed at the perineal floor for two or three hours, rub the abdomen, change the posture, press upon the child's breech through fundus, induce the patient to bring into play all the expiratory muscles by finding fixed points for hands and feet, give ten or fifteen grains of quinine, or, if none of these expedients succeed, use the forceps if they may be easily adjusted to the head of the child.

During the expulsive stage prevent laceration of the perineum, if possible, by preventing the birth of the head till full perineal distension shall have occurred, by keeping the head well up under the pubic arch, or by securing expulsion when the parts are relaxed.

Placing the hand upon the perineum does not prevent laceration, unless the pressure be great enough to retard the progress of the head or give it proper direction.

Should rupture of the perineum be inevitable, make lateral incisions through the vulva.

If asphyxia threaten the life of the child after birth of the head, excite pain by rubbing the uterus through the abdominal wall, and by inducing patient to bear down, thus hastening delivery.

The upper shoulder sometimes catches under the pubes. To release it, grasp the head with both hands and pull downwards.

Be careful not to allow the delivery of the shoulders to lacerate the perineum. To prevent such an accident, press the shoulders well forward under the pubic arch as they advance.

Should the cord be wound about the neck, pull upon the placental end till sufficiently loosened for the shoulders to pass through the loop.

During the third stage of labour, use Credé's method to hasten expulsion of the placenta and prevent undue haemorrhage. Make no traction upon the cord until the placenta becomes detached from the uterus.

Gently twist the placental membrane in order to ensure its entire separation and delivery.

We come now to a consideration of the physiology and management of the process of convalescence.

Lassitude and fatigue immediately follow the delivery of the child. Generally a chill, more or less intense, occurs after the completion of the third stage. As a rule, it has no special significance. Insist upon rest and quiet for the patient, and cover her with sufficient bed clothing to make her comfortable; use hot water-bag or bottles, if necessary.

The abdomen is relaxed and flaccid, the breasts very often are heavy and painful. Support both by applying a close-fitting bandage from the hips to the axillae.

The amount of urine is increased during the first forty-eight hours, and the ability to pass it is sometimes lost. In case of retention, use the catheter: use within eight hours after delivery, if necessary.

During the first seven or eight days the skin is active and bathed with perspiration. Be careful, therefore, lest the patient be exposed to draughts or sudden changes of temperature. During the early puerperal days the digestive function is poorly performed, the bowels are sluggish. After forty-eight hours, give a mild cathartic.

The nervous system is excited. Do not allow the patient to be annoyed or disturbed. Provide cheerful and quieting influences. Immediately after delivery the lochial discharge

consists of pure blood and coagula of fibrine, but in a few hours it becomes somewhat serous. During the first two or three days the lochia are red in colour. Usually, by the fourth or fifth day, they are pale red on account of the diminution of the sanguineous elements. During the second week the discharge is generally grayish-white or yellowish in colour. Finally, the discharge becomes transparent, and diminishes in quantity. Usually, after the fourth or fifth day, the lochia are found to have an odour due to decomposition.

External absorbent pads should be applied to the vulva and renewed at least every two hours till the flow diminishes. Never use pads which do not quickly absorb the lochia. Look out for clots. As soon as a disagreeable odour manifests itself, wash out the vagina with a solution of bichloride of mercury (1 : 4000) or of carbolic acid (℥i–Oi) once or twice daily, according to the requirements of the case, and always use the fountain syringe. Keep the external parts clean.

The uterus, during the first few days of the child-bed, is reduced in size by contractions which are often very painful, but not less essential on that account. Do not give an anodyne unless they prevent sleep and rest. Nursing the child produces reflex contractions, sometimes very intense in character. This act should be encouraged, especially when the uterus has a tendency to remain flaccid.

The diet should coincide with the physiological indications in each instance. During the first three days solid food is usually contra-indicated. Give milk, soups, gruel, milk toast, and tea. After the bowels have been moved on the third day, give easily digested food, like chops, steak, and soft-boiled eggs. If possible, every mother should nurse her infant, at least during the time she remains in the puerperal condition.

Having thus endeavoured to outline an answer to Dr. McLeod's question, I submit what I have written to the members of the New York State Medical Association for their indulgent consideration.

Question II. Is the present technique, in the management of labour and the process of convalescence, in accordance with sound physiology?

By George T. Harrison, M. D., of New York County.

Since the doctrine of the potency of micro-organisms in causing sepsis has attained to general recognition, the conduct of labour and the puerperal state has undergone a radical change, and now we may confidently assert our mastery over the greatest scourge of woman, puerperal fever, by a strict observance of asepsis. If this be true, as it undoubtedly is, then the responsibility of the accoucheur assumes fearful proportions if a fault in his technique allows the development of this dread disease, and such fault must necessarily involve sins against physiological processes, for normal labour excludes infection. A disregard of physiological laws in the management of labour and the puerperal state may also prove disastrous to our patients by consequent haemorrhage, subinvolution, prolapsus, or retro-displacement.

As the most important problem of the obstetrician is to see to it that he does not infect his patient, it cannot be too strongly insisted upon that internal examinations should be limited, and should be substituted by external to a far greater degree than it was usually practised. It cannot be denied that the danger of infection increases with the frequency of internal examinations, and hence it should only be resorted to in the interest of mother or child.

As Credé admirably represents it,—"The most extreme limitation, and even the entire omission, of internal examination may be very well compensated and substituted by external examination. To teach and practice the latter to a greater extent is an indispensable problem of the present and future in institutions where instruction is given."

As to the paramount importance of the thorough disinfection of the hand of the obstetrician, and of all instruments, vessels, and clothing likely to be brought in contact with

the parturient woman—so called *subjective antisepsis*—we are all agreed. Of the necessity of an objective *antisepsis*, so far as a thorough cleansing and disinfection of the external *genitalia* is concerned, there can be no question. I must dissent entirely from the views of those who uphold the doctrine of auto-infection, and as a consequence of their doctrines insist upon the necessity of a thorough disinfection of the parturient canal, thus laying chief emphasis on *objective* antisepsis as a prophylactic measure.

A streptococci infection through so called auto-infection by the normal genital secretions is impossible; and the healthy parturient woman may be regarded as aseptic. Virulent infective germs always come from without. Antiseptic vaginal douches should not be administered, therefore, *before* or *during* the birth, in a normal condition of the pregnant or parturient woman. They are also contra-indicated under the same conditions *immediately after the birth* and *during the puerperal state*, as they are not only useless but positively injurious. Such disinfection procedures deprive the parturient canal, to a greater or less degree, of its physiological mucus, which subserves the purpose of a protecting coat from vulva to os internum. The mucosa is made thereby more vulnerable, not only in consequence of the want of its mucus, but also by reason of the attendant manipulations.

Small epithelial wounds are hardly to be avoided in the use of these measures, and as a consequence the entire mucous membrane becomes more susceptible to the invasion of infective germs; in other words, it offers a favourable soil for their development. It must be borne in mind, too, that the course of birth is mechanically retarded by this loss of the vaginal mucus, as one of its physiological functions is to diminish friction and facilitate the passage of the child's head through the canal invested by it.

Of late years the proper management of the placental period, or third stage of labour, has called forth animated discussion, the effect of which has been to stimulate exact observation of the natural course of the placental delivery—

in a word, of its physiology. As a result of this study, we now know that the detachment of the placenta is due to the uterine contraction belonging to the placental period. Further, that the behaviour of the uterine body as observed through the abdominal coverings is, that with each contraction the fundus ascends higher, the body becomes smaller and narrower, "the ring of contraction" which had disappeared immediately after the birth of the child again becomes plainly discernible; consequently, the most certain clinical symptoms of the detachment and extrusion of the placenta from the uterine body are the ascent of the fundus, the diminution in the size of the uterus, the manifestation of the furrow corresponding to "the ring of contraction," and "the lower uterine segment" distended by the extruded placenta. This detachment and expulsion of the placenta out of the uterine body into "the lower uterine segment" occurs spontaneously and according to physiological laws, and requires for its completion five to fifteen minutes as a rule.

Consequently, we may affirm the law, based on a wide induction, that, leaving out of the question pathological cases, the natural forces are fully adequate to the detachment of the placenta, and that *there is no necessity for any kind of active intervention on the part of the obstetrician to assist the physiological act.*

I have, therefore, following the method employed by the late accomplished Carl Schroeder, refrained from all active intervention, until the diminution and ascent of the uterine body and the protuberance above the symphysis pubis indicated that the placenta was expelled from the cavity of the uterus; then, by gentle pressure, I have expedited its passage through the vulva.

The method of Credé, which, as you well know, has as its essential feature the manual expression of the placenta out of the uterine body, I would reserve for the cases in which the placenta does not become detached physiologically, as likewise for those in which it has been separated in the way described by Duncan, and consequently has remained with

the upper edge in the uterine body. Lastly, I should employ this method when there is some obstacle in the way of the complete expulsion of the placenta out of the uterine body, as might occur when a very large placenta had to pass through a moderately contracted "ring of contraction."

If the views we have advocated are in accord with sound physiology, it must be obvious that the technique of those who employ the Dublin method, as described by McClintock and Hardy in 1848 and afterwards recommended by Spiegelberg and Barnes, is faulty, inasmuch as it unnecessarily interferes with a physiological act. This manipulative procedure, I need scarce remind you, consists in this,—that immediately after the exit of the child's head through the vulva the hand is laid on the fundus, and by friction and kneading energetic contractions are evoked, so that the placenta is quickly separated and expressed beneath the ring of contraction, further pressure forcing it out of the vulva. Nor can I admit that the expectant plan, which has found its chief exponent in Ahlfeld, is in accordance with sound physiological principles. After the placenta has been extruded from the body of the uterus into "the lower uterine segment" no advantage whatever can accrue to the woman from delay, and, on the other hand, no injury is produced by active intervention. The reasons urged by Ahlfeld in favour of the expectant method are not cogent. He insists that the Credé method and its modifications are liable to cause haemorrhage, and, further, that portions of the decidua and chorion are more likely to be left behind in the employment of these procedures.

In regard to haemorrhage, the Credé method, or Schroeder's modification, are not obnoxious to this objection when properly employed. With reference to retained portions of decidua and chorion, the importance attached to them by Ahlfeld is exaggerated and unwarrantable. For the refutation of his views, it is sufficient to refer to the admirable studies of Credé.

Too much emphasis cannot be laid upon the importance of

an ocular inspection of the external genitalia immediately after the delivery of the placenta, in order to ascertain the existence of any wounds about the vaginal outlet. These may be demonstrated invariably in primiparae, and, as a rule, even in multiparae. Small tears of a triangular shape are often observed on the inner side of the labia minora, and by no means unfrequently tears will be found on the sides of the urethral opening, or between the urethra and clitoris. These latter wounds occasionally give rise to profuse haemorrhage. Most frequently, however, these tears are found to consist in lacerations of the frenulum, or, when that is intact, of lacerations behind it, involving the fossa navicularis. Quite usually tears are found at the lower part of the vagina, at one or both sides of the columnae rugarum. These wounds, however slight, should be sutured at once with catgut sutures, under irrigation of an antiseptic fluid. I say nothing of the necessity of repairing all external wounds of the perineum and vagina. About that we are all agreed.

One point I desire to touch upon in the management of puerperal convalescence. As I have elsewhere remarked,[1] "No exposition of the aetiology of retroversio-flexio can lay any claims to completeness without reference to the influence of the puerperal state in the production of this morbid state. During the puerperal state two predisposing factors come into play, which render it comparatively easy for dislocating forces to unfold their efficacy. All the pelvic organs are in a condition of relaxation, and the uterus is enlarged and swollen: if, therefore, the patient lies persistently on her back and the bladder is allowed to become distended, and if the rectum, in addition, is allowed to be permanently filled, it must follow, as a necessary consequence, that the fundus uteri is forced backward, on the one hand, and the cervix is ante-posed, on the other; the retractores are hindered in their involution, and retroversio-flexio is the result." Need I remind you how frequently these simple physiologcal principles are violated in the management of the puerperium?

[1] Vide Amer. System of Gynaecology. Vol. ii, p. 1114.

Question III. To what extent have the surgical means of treatment of labour complications been successful, or should these complications and the processes of repair have been more generally left to nature?

By T. J. McGillicuddy, M. D., of New York County.

Obstetricians have probably asked themselves, time and again in one form or another, the above important and practical query. In its consideration, reference may be made to application of the forceps, manual or bandage expression of the foetus, prevention of lacerations, episiotomy, immediate and secondary repair of lacerations, and results.

The second stage of labour is principally to be considered, because, except in very rare instances, there is to be no interference before complete dilatation of the cervix. The duration of the second stage is exceedingly varied,—in one case it may last but a moment, and in another days, and it is usually towards its end that the trouble arises.

The theory that the bag of water is of no service after the cervix is dilated, and that the progress of labour is suspended until it is ruptured either spontaneously or by the physician, seems to me to be erroneous. It has also a function in dilating the vagina, and in some cases even has a useful effect in the perineum. To interfere with it, therefore, appears like a meddlesome procedure.

The application of the forceps in a correct manner is something that requires the skill and all the care of a surgical operation. Every practitioner thinks he can handle the forceps: but to do it properly is another affair. The skilful use of the forceps does undoubtedly decrease infantile mortality, but its bungling manipulation increases it. There is no danger in simple delay at the inferior straight, if it is not too protracted; and each case should be handled on its own merits, as it will test the judgment and good sense of the attendant by the results obtained. It makes no difference how long the woman is in labour. If she or the infant be

not in danger, there is no call for interference. The attendant should not consider his sacrifice of time, but make his charges conditional, in case there is excessive waiting. It will not do to be influenced in the application of the forceps by anything but the medical aspect of the case, but there is often a disposition to put them on sooner than it is really necessary, urged by the apparent sufferings of the patient and the importunities of relatives and friends to "do something for her relief." Some women suffer a great deal more than others, and, in their agitation and excitement believing that they will die undelivered, are often anxious for their application long before we are justified in it.

It is said that the forceps are applied much more frequently in private than in hospital practice, and that the policy of waiting on nature has with many physicians given way to their earlier and more frequent use. This is to be deprecated, as in many cases where they have been used with seeming success the child often lives only a week or two, and then dies, generally from some cerebro-spinal lesion.

Manual or bandage pressure may often be employed in assisting the uterine contractions in expressing the foetus. The hands should be spread out over the fundus, and firm, but not too severe, pressure made during the pains. If the patient is on the left side, then a large roller towel or binder can be spread over the abdomen, to be twisted behind into a knot and drawn tightly during each contraction, thus assisting the expulsion and satisfying the patient that something is being done to help her. This is much better than to stretch or manipulate the perineum with the fingers as many do; and if in spite of this assistance there is no progress, and the life of the child is prejudiced (as can be determined by watching the foetal heart), and the integrity of the soft parts endangered, we must then apply the forceps. There is no absolute rule to be laid down in these cases, but three per cent. would seem to be a fair average of cases for instrumental interference. In the rest, if left to herself by non-interference, nature will gradually and safely finish the deliv-

ery. Meddlesome midwifery is as much to be deplored now as ever, and the patients often object to being "butchered" as they term it. Dr. Joseph Clarke, of the Rotunda hospital, in 3,862 cases in private practice used the forceps but once, and nevertheless not a woman died, and but few children. Interference, even by the skilful, often means mischief. Nature is the best judge, and generally performs her work in a beautiful manner. Mild delirium is not alone an absolute indication for hastening the labour by instrumental interference, as some women become delirious on slight provocation; but when pathological phenomena, denoted by a marked rise of temperature, weakness and rapidity of the mother's pulse, or feebleness and irregularity of the infant's heart or when these threaten, there is no time for delay.

There always will be cases of disproportion between the passages and passenger, which will cause perineal rupture in spite of every effort; but the following method will be found useful in assisting the perineum, and preventing internal lacerations becoming external and complete in many cases. The description is taken from the *American Journal of Obstetrics* for December, 1889:

If the posterior commissure and perineum become dangerously tense, or when the forceps has brought the head against the perineum, distending it and the vulva sufficiently to allow about two inches of the scalp to show between the labia, and delivery of the head is imminent, the following method may be employed:

Standing at the right side of the patient, with the forceps removed, after wiping the skin with a dry towel, the left hand, with the thumb on the right labium and the tips of the fingers on the left, draws the vulva and constrictor vaginal from their attachment at the symphysis, thus enlarging the ostium vaginae and relaxing the fourchette. The right hand also relaxes the posterior commissure by pressing the skin, connective and muscular tissues towards it (as illustrated in Fig. 1, in the direction of the arrows). The rate of delivery may be regulated by pressure of the thumb of the right hand against the scalp, if it is coming too fast: or the first two fingers, by pressure at the brow, malar bones, or chin, through the anterior wall of the rectum, can assist enucleation of the head in the intervals of the pains. With the right hand we relax from the sides the skin, transversus perinei muscle, and that part of

the perineal fascia named by Savage the ischio-perineal ligaments, and mucous membrane. That this pinching and pressing of the transversus perinei toward the central tendon of the perineum can be done is shown

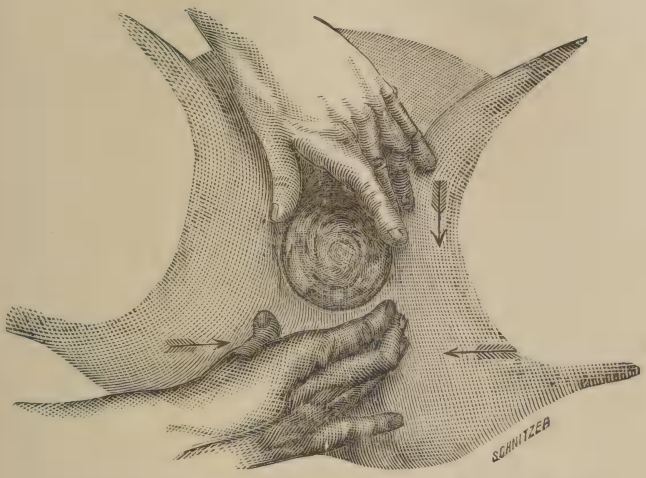


FIG. 1.—Showing author's method of assisting the perineum.

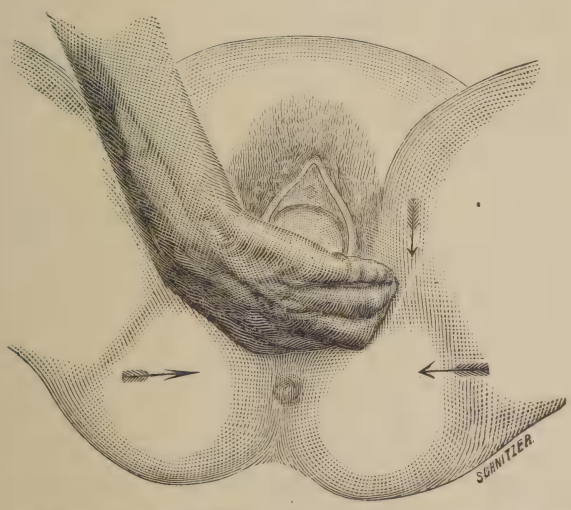


FIG 2.—The left hand,—as the bitemporal and bimastoid diameters escape the vulva.

by pinching up the tissues of the thigh. The principal strain comes on the central portion of the perineum at the fourchette.

The above method is to be used during the pains, before and at the moment of crowning and expulsion of the head. . . . It increases the circumference of the vaginal outlet when it corrugates, and relaxes the posterior commissure: it also has a strengthening effect in the weakest part. At the same time it helps the head to complete the pelvic curve, and, in emerging, to hug the pubes, thus assisting and imitating nature.

Episiotomy is an operation that seldom does what it is intended for, and lacerations occur in spite of it. It is one whose usefulness it is very hard to appreciate. Perineal tears of slight extent, and where the muscles are not deeply involved, need not be sutured. As there is no special gaping and no loss of tissue, they generally unite immediately if the knees are bandaged. A laceration may look serious at first glance, but in a comparatively short time it has subsided into a very small tear, and in these cases suturing is seldom imperative. The application of a single stitch or two is simple enough; but the care thus taken by the obstetrician is seldom appreciated by the patient, and if the tear is slight, it is better to leave its adjustment and repair to nature.

Very severe and complete lacerations should always be sutured immediately or within a few hours, and the results will be satisfactory if there is no dyscrasia.

In secondary operations, not every laceration of even considerable extent of cervix or perineum need be repaired. It is only when there is some pathological condition present dependent on the laceration that it is necessary to operate. No patient wants to submit to an unnecessary operation.

Question IV. What influence would a more advanced obstetric science have on the biological and social condition of the race?

By William H. Robb, M. D., of Montgomery County.

Mr. President and Fellows: In this discussion on obstetrics we are asked in Question IV, "What influence would a more advanced obstetric science have on the biological and social

condition of the race?" To answer this question intelligently, we must consider obstetrics as an abstract science. We must inquire into the history of the past, and compare the results obtained in former years with those that are now obtained, and from them conclude what, by an advance in this science, should be the result in the future. The obstetrician's care should begin with the woman's conception. His duties should continue not only during her gestation and labour, but until full convalescence. The accidents and complications which render the labour tedious and dangerous to the mother or child, as well as those that prevent the delivery of the child through the natural passages of the mother, may then be considered, and the injuries found after labour will finally occupy our attention, whether the injuries relate to the mother or to the child. The importance of the diseases of the puerperal state forbids that they be overlooked, as they form such an important item in the death rate of lying-in institutions. Abortion is one of the first accidents, and a very frequent one, that interrupts gestation.

John Burns (Abortion, p. 7, 1809), under the head of "Observations," says of abortion,—

> It is an accident or disease which is very frequent in its occurrence, which is always attended with disagreeable circumstances, and which, although it seldom proves immediately fatal, may yet be productive of much mischief at a future time.

Dr. T. Gaillard Thomas, in his work on abortion, published in 1890, writes as follows:

> In regard to the prognosis in abortion, it is impossible to speak accurately because reliable statistics are not attainable, and we cannot say, therefore, what the percentage of deaths is. I would say in general, however, that the prognosis is good except in criminal cases and in cases where antiseptic methods are neglected in the treatment. I am speaking now, you will understand, of the prognosis as to life. As to the matter of health, I cannot express the same opinion, for it is an unfortunate fact that vast numbers of women are invalided by abortion.

As intimated in this quotation, abortion is not always the result of disease or accident. Criminal abortion prevails to

an alarming extent among us. The crime is confined to no single class or people. It is met with at all points in the social scale and in every locality. With the increased mortality, resulting from criminal abortion, all are familiar. Almost daily we see in our papers an item referring to a death from malpractice. By enforcing laws that would justly and fully punish the criminal who assists in procuring the abortion, together with the adoption of improved methods in their management, we should expect to see the lives of many children saved and the health of their mothers preserved. In private practice, placenta praevia seldom occurs. By computing the reports of various observers, Müller found that it had occurred 813 times in 876,432 births. Lusk (1888) states that in the Emergency hospital in the city of New York not a single case has occurred since it was opened, although there have been between 1,500 and 1,600 women confined in the institution. That it is rare is very fortunate, as the mortality from placenta praevia has always been and still is very great. The child rarely survives, and the mother often dies from the loss of blood. Lusk thinks that with this complication one mother in four dies during or shortly after delivery. According to the same author, in placenta praevia nearly two out of every three children are born dead, and of those born living one half die during the first ten days. Theophilus Parvin (Science and Art of Obstetrics, 1886, p. 318) estimates the maternal mortality at from twenty-five to thirty per cent., and the foetal mortality at from fifty to seventy or seventy-five per cent. This mortality resulting from placenta praevia, as well as that resulting from post-partum haemorrhage, whether the result of inertia of the womb from its rupture or laceration, or from rupture or laceration of the vagina or vulva, should be diminished or prevented by new methods and remedial measures. Inertia and inversion of the womb should thus be prevented.

Albuminuria frequently complicates pregnancy. It is sometimes detected early in gestation, but is more frequently found as gestation advances. Its presence is always suggestive of

trouble. It is often a forerunner of puerperal convulsions. One in twenty pregnant women suffer from it. New remedies will doubtless enable us in the future to manage these cases better than can be done at present. Eclampsia occurs rarely. It is thought to occur once in every five hundred pregnancies. As to the mortality rate resulting from eclampsia, little is said in the works of our earlier writers. In fact, the relation existing between albuminuria and puerperal convulsions had not then been recognised. In 1842, Dr. John C. W. Lever first drew the attention of the profession to this matter.

Dr. Parvin estimates the maternal mortality at thirty per cent. and the foetal mortality at fifty per cent. This corresponds very nearly with the tables cited by Lusk. As we are constantly making advances in pathology and therapeutics, by these means we may hope to be better able to manage these cases successully. By the same means we will be aided in preventing or shortening the duration of puerperal mania. The prognosis in puerperal insanity is not considered grave by Lusk, who states that sixty per cent. of the cases end in recovery. No positive figures are within my reach by which I can determine the general mortality that results from a narrow or deformed pelvis. It is safe to say that it increases in direct ratio as the size of the pelvis diminishes, as regards both mother and child. The mortality is great where the contraction is sufficient to require the use of instrumental aid. The use of the forceps is doubtless the least destructive to life of all artificial measures used in delivery, but they can only be used successfully in those cases where the pelvis is but slightly contracted. Embryotomy is followed with a maternal mortality of from twenty to thirty per cent. This holds true, or varies but little, whether the operation made be perforation, craniotomy, cephalotripsy, cranioclasm, or evisceration. Caesarean section, first made on a living woman in 1500 by Jacques Nufer, has, as stated by Dr. A. Charpentier (Cyclopaedia of Obstetrics and Gynaecology, Vol. IV, p. 207), a general mortality of from fifty-four to sixty per cent. The technique of this operation has been so much

improved and the operation itself so modified, that a few operators have almost stripped it of its former mortality. Out of ten cases reported by Leopold, nine mothers recovered, and ten children were delivered alive. Not a single death occurred in six cases operated on at Leipsic. Of these six sections Sänger made four, and Obermann and Donat one each. In another series, fifteen mothers recovered out of sixteen operated upon, and all the children were saved. Thomas's operation, or gastro-elytrotomy, had up to 1887 been performed twelve times. Six mothers recovered, and seven children were born living. Porro's operation, utero-ovarian amputation, first made by Storer of Boston, in 1868, had, up to 1880, a maternal mortality of 53.33 per cent., and a foetal mortality of 23.80 per cent. Before the introduction of antiseptics into obstetric practice, the mortality from puerperal diseases varied from eight to ten per cent. Since antiseptics have come into more general use, this rate of mortality has been reduced from two to five per cent., and in a few instances to one half of one per cent. With the facts and figures already presented, it is not too much for us to look forward to a time, and that not far distant, when a perfected obstetrical science will furnish instruments, operations, and therapeutic measures by which the most deformed woman can be safely delivered of a living child. Obstacles to the safe delivery of the mother that result from deformity of the child will be surmounted in a similar way. All the injuries to the mother resulting from labour will be immediately repaired. Any injury to the child will be promptly treated. With these accidents and complications successfully met or prevented, we will then have more resources at our command for the prevention of puerperal diseases. New remedies will be discovered, new methods will be tried, until a more advanced obstetric science will furnish us with means by which the diseases and accidents incident to gestation may be relieved, the dangers resulting from difficult labour overcome, and the complications of the puerperal state entirely prevented. The race will be benefited by the preservation of many valuable

lives. A goodly number of mature and healthy women will be saved—women who now suffer for years as the result of injury or disease due more or less to the complications of the lying-in state. Whose pen can picture the results? Women, who from protracted suffering are rendered almost demoniacal, will be transformed, and elevated to their natural sphere of ministering angels. Children will increase and multiply upon the face of the earth, and fill, improve, and elevate every calling. Then, and not until then, will advanced obstetric science have reached perfection.

Question IV. What influence would a more perfected obstetric science have on the biological and social condition of the race?

By Alfred L. Carroll, M. D., of New York County.

Whatever spiritual sins of mine may be stricken from the books of the Recording Angel as fully expiated by the penitential attempt to answer the question allotted to me in this discussion, I fear that I shall add to my professional shortcomings in venturing upon an argument which depends almost entirely on an overstrain of the "scientific use of the imagination."

For a proper consideration of the problem, we should possess statistical evidence of the mortality and morbidity of mothers and children respectively, due immediately or remotely to parturition, and of the degree in which such mortality and morbidity may be regarded as preventable. This evidence, however, is in all respects scanty, and in some absolutely non-existent.

"Still-births" are not officially registered either as births or deaths, and even in the very imperfect occasional records of them it is impossible to separate the foetal deaths before the beginning of labor from the deaths during birth or soon after birth—the latter being often reported under this category; nor can we determine, outside of a few hospital reports

which represent an infinitesimal fraction of the total child-bearings, the proportions of abnormal presentations, of deformed maternal pelves, or of spontaneous or artificial deliveries in these alleged still-births—the vast volume of private midwifery being virtually a sealed book. Quetelet computed the ratio of still-births to total births as 1 in 12.5, or a little over 8%, but he evidently included many children who had breathed before dying, as is demonstrated by the contemporaneous tabulation of Mme. Lachapelle's experience, comprising 22,243 births, with a total mortality of 1,600, being 1 in 13.9 or 7.2%. But of these, 763 were not born dead,—633 or 2.85% of the total births being classified as "feeble" (*i. e.*, "apoplectic," "premature," etc.), 116 or 0.52% as "abortive" (non-viable), and 14 as monstrous or deformed,—leaving 837 or 3.76% actual still-births. This accords with the few later estimates founded on sufficient numbers to warrant generalisation. Farr opined that in England the proportion was about 4%; in Belgium (1860–1865) it was reported 3.7%; in France (1875) as 3.6%.

There are no means of ascertaining how many of these "dead born" are done to death during the act of parturition, but that the number is very great may be inferred from a comparison of spontaneous and artificial deliveries, the latter of which are usually performed on account of mechanical obstacles in the genital passages, uterine inertia, maternal haemorrhage or convulsions, or on the foetal side, malpresentations, prolapse of cord or arm, or deformities of various kinds. From the subjoined condensation which I have made of Lachapelle's tables, it is shown that in all the spontaneous deliveries (omitting those of the shoulder, in which the two still-born are specified as "putrid"), the ratio of the dead-born is 3.5%, while in the artificial deliveries it rises to 25%.

Presentation and Delivery.	Total.	Living.	Dead.	Feeble.	Abortive or deformed.	Total deaths.	Excluding non-viable.
Vertex, spontaneous,	20,567	19,450	635	462	20	1,117 = 5.43 % or 1 in 18 4	1 in 18.75
" forceps,	72	38	17	17	0	34 = 46.6 % or 1 in 2.1	
" version,	47	29	8	10	0	18 = 38.3 % or 1 in 2.6	
Face, spontaneous,	88	78	3	6	1	10 = 11.36 % or 1 in 8.8	
" forceps,	5	1	1	3	0	4 = 80.0 % or 1 in 1.25	
" version (inertia),	7	4	0	3	0	3 = 42.86 % or 1 in 2.33	
Pelvic, spontaneous,	790	575	101	98	16	215 = 27.2 % or 1 in 3.67	1 in 3.9
" version,	12	6	3	3	0	6 = 50.0 % or 1 in 2	
Shoulder, spontaneous,	12	0	2	0	10	12 = 100.0 %	
" version,	106	63	26	17	0	43 = 40.57 % or 1 in 2.5	
Brow, changed to face,	2	1	0	1	0	1 = 50.0 %	
Craniotomy,	12	0	9	0	3	12	
Hysterotomy [after death of mother]	4	0	2	2	0	4	
Undetermined, spontaneous,	517	397	29	11	80	120 = 23.2 % or 1 in 4.3	1 in 12.9
" version,	2	1	1	0	0	1 = 50.0 %	
Total spontaneous,	21,974	20,500	770	577	127	1,474 = 6.7 % or 1 in 14.9	1 in 16.3
" artificial,	269	143	67	56	3	126 = 46.8 % or 1 in 2.13	1 in 2.19
" spontaneous and artificial,	22,243	20,643	837	633	130	1,600 = 7.19 % or 1 in 13.9	1 in 15.13

Further analysis of the presentations and accidents of labour is necessary to gain a partial view of the cases in which obstetric science and art may lessen this mortality, which means the death, at or soon after birth, of nearly 72,000 children out of every million born.

In the vertex presentations, spontaneously born, of Lachapelle's table, the "dead" were 1 in 32.4, and the "feeble" (dying within a day or two) 1 in 44.4, the only commentary made being that in ten or twelve instances the cord was prolapsed, half of these dying during delivery. Of her artificially aided vertex deliveries, the "dead" were 1 in 4.76, and the "feeble" 1 in 4.4. But in the 72 applications of the forceps, 39 were for uterine inertia or rigidity of the external genitalia, 8 for pelvic contraction, 2 for "scirrhus of cervix," 1 for haemorrhage, 1 for uterine obliquity, 8 for maternal convulsions, 9 for faulty positions of the head, 3 for prolapse of the cord, 1 for prolapse of the arm: that is to say, in 59, or 82% of the whole, the dystocia was due to maternal causes, the children dead or dying being 1 in 2.1, and to foetal causes in 13, or 18%, with the same ratio of mortality. The versions in head presentations—47 in number—comprised 24 for inertia, 6 for contracted pelves, 1 for rigidity, 1 for recto-vaginal cyst, 8 for haemorrhage, 5 for prolapsed cord, 1 for prolapse of hand, and 1 for parietal position; 40, or 85%, from maternal causes with 1 in 2.5 children dead or dying, and 7, or 15%, from foetal causes with a death-rate of 1 in 3.5. Of the cases due to inertia, convulsions, and haemorrhage, a considerable proportion would doubtless be averted by hygienic precautions, especially during pregnancy, but in the majority of instances, and particularly in hospital practice, the physician has little or no opportunity to enforce these precautions, and among the poorer classes too often the conditions of health are unattainable.

The face presentations in Lachapelle's catalogue were 100 in number, or 1 in 222.4. Of these, 88 were spontaneously born, 9, or 1 in 9.7, dead or dying. Of the 5 forceps deliveries and 7 versions, all were for inertia except one in which

a brow presentation was rectified by forceps, the mortality being 1 in 1.7. Thus, in all the face presentations we find a mortality of 1 in 6.25, or 16%. Lusk computes the ratio of these presentations as 1 in 255.5, and quotes Winckel's statement that the mortality of children is 13%. Swayne estimates the frequency as 1 in 231. The experience of Collins shows a mortality of 12%. Most of these records, however, concern only the children born dead, omitting those which die soon after birth, so that the estimate based on Lachapelle's table is probably nearest to the actual death ratio.

Pelvic presentations (including breech, foot, and knee) are stated by Lachapelle as 1 in 27 labours; by Swayne and Tanner as 1 in 38, the breech presenting about twice as often as the feet or knees. The mortality, according to Lachapelle, is a little over 25.5%; to Tanner, 33%; to Meigs, over 20%; to Collins, 37%.

Shoulder presentations are, by the estimates of different observers, as follows: Lachapelle, 1 in 188; Churchill, 1 in 252; Spiegelberg, 1 in 180; Depaul, Dubois, and Pinard (quoted by Lusk), 1 in 117; Swayne and Tanner, 1 in 231; the infant mortality being about 50%.

The comparative frequency of brow presentations is not easily estimated, since many of them are spontaneously converted into face or vertex before a diagnosis is made. As regards the mortality of children in recognised cases, Lusk cites 34 deliveries: 10 spontaneous (brow continuing), with 3 deaths during labour; 10 converted to face or vertex naturally, with 1 death; 9 extracted by forceps, brow first, with 1 death (from prolapsed funis); 5 changed by forceps to face or vertex, with no death;—a total mortality of 4 attributable to the presentation, or about 12%.

Taking the averages of all the data which I have been able to obtain, the probable frequency and child-mortality (excluding non-viable foetuses) of different presentations in a million births may be thus approximately stated:

Presentation.	Total.	Dead or dying.
Vertex, ...	960,000	53,500
Face, ...	4,000	640
Pelvic, ...	30,000	9,000
Shoulder, ...	5,000	2,500
Undetermined (including forced delivery for maternal convulsions or haemorrhage, contracted pelvis, embryotomies, etc.), ...	1,000	360
	1,000,000	66,000, or 1 in 15.

In addition to these there will be about 5,800 non-viable children, raising the death list to 71,800, or 1 in 13.9.

In the course of these million labours, we shall meet with about 600 cases of placenta praevia; 4,000 of prolapse of the cord; 1,000 of contracted pelvis; and 2,000 of maternal convulsions (including those which occur before or after delivery, as well as those during labour) with a maternal mortality of 1,400. Artificial delivery by forceps or version will be necessary in somewhat over 12,000 cases, with nearly 5,500 infant deaths. Of these instances of dystocia, about 48.5% will arise from maternal, and about 51.5% from foetal, causes. In the former category, uterine inertia plays the largest part.

To what extent this loss of infant life may be reduced is a mere matter of surmise, but in its reduction obstetric science and hygiene must work together. The correction or better management of malpresentations is already showing beneficent effects in the practice of experts, and will doubtless ere long improve the general results; but even here there is room for great advance. The mortality from either natural or artificially induced pelvic presentations is in the majority of examples owing to compression of the cord, and this mortality is so large as to cast a shadow of doubt upon the propriety of podalic version in many cases in which it is advocated by some eminent authorities. According to Churchill, version in normal pelves is fatal to more than one third of the children, and in contracted pelves the death rate is, of course, much larger. Lusk, who is wisely conservative in this respect,

argues that with a conjugate diameter of more than 5½ inches, nature is, as a rule, adequate to accomplish delivery. In the statistics cited by him, version in ordinary flattened pelves was followed by the death of 50% of the children; version in generally contracted pelves by about 90% of foetal deaths; with the use of forceps above the brim nearly 40% of mothers and over 60% of children died; while in spontaneous deliveries less than 3% of mothers and 13% of children were lost. Inasmuch as a large proportion of deformed pelves arises from rickets in early life, and a smaller from malacosteon in later years—both being principally results of insanitary conditions—it is not only possible, but probable, that as the knowledge and application of hygiene become more diffused these causes of dystocia will be vastly diminished in number; indeed, their frequency is demonstrably in inverse ratio to the prosperity of a community. So also watchfulness and prophylactic treatment during pregnancy may (and in the best practice do) decrease enormously the percentage of puerperal convulsions.

Premature or abortive births, as they arise from general ill health or local disease of the mother (including many cases of placental degeneration), or occasionally from chronic lead-poisoning, may to a certain extent be preventable by hygienic or gynaecological means; those from external violence or nervous shocks will continue to hold their place on our records as long as feminine impulsiveness, staircases, step-ladders, and brutal husbands exist, and autocratic drivers usurp their reckless right of way.

As regards the effects of dystocia on the later life of the child, little can be learned. In patients whom we see as adolescents or adults we can rarely ascertain the character of the birth or the condition of infancy. None of us can doubt, however, that the morbidity from this source is very great. From the French returns, Farr calculates that out of a million children born, 29,121 die in the first week, 22,128 in the second week, and 22,236 in the next sixteen days, making a total of 73,485 in the first month. The English Life Table

computes a somewhat less mortality, *i. e.*, 46,500 deaths in the first month; 17,200 in the second; 12,180 in the third; 10,100 in the fourth; 9,550 in the fifth; 9,030 in the sixth; 8,550 in the seventh; 8,080 in the eighth; 7,660 in the ninth; 7,250 in the tenth; 6,870 in the eleventh; and 6,520 in the twelfth;—a total of 149,490 per million in the first year. Many of these early deaths are produced by insanitary conditions, as is proved by the difference between the "Healthy Districts" of England and Liverpool, in the former of which 36,610 (per million) children die within the first month, while in the latter the mortality during the same period is (or was when Farr's analysis was made) 54,490 per million. It is to be regretted that the registration of vital statistics is so imperfect in this country as to preclude any attempt to classify by months the mortality under one year; but the data, such as they are, indicate that, in the United States generally, about 25% of live-born children die during the first twelve months.

It would not be unreasonable, perhaps, to assume that at least half of the deaths under one month are attributable to accidents in parturition, and that a large residuum of those occurring in the first year has a similar origin; but the admirable reports of Farr may enable us to go a step farther in the field of inference. The death-rate under one year per 10,000 births in England, for three years ending with 1875, was 1,527. Of these, 95 were ascribed to the acute zymoses, 29 to "teething," 171 to diarrhoea, 263 to "lung diseases," 98 to tuberculosis, 128 to prematurity, 267 to "atrophy," 14 to "suffocation," and 251 to convulsions, leaving 211 "not stated." The deaths from prematurity, "atrophy," and convulsions constitute nearly half of the mortality—all of the former and a considerable proportion of the latter two being referable to the time or act of parturition, and some of the pulmonary disorders having their predisposition, if not their origin, in atelectasis at birth. In Farr's "March of an English Generation," based on the labour of over thirty years, he computes that the average deaths per million under one year will

be 149,493, of which 30,637 will be from diseases of the nervous system and 21,995 from respiratory maladies. West, taking a wider view of "nervous" disorders, ascribes to these 30.5% of all the deaths under one year, and to convulsions alone 73.3% of the "nervous system" mortality, equivalent to 33,421 per million births.

After the earlier months of this perilous first year, convulsions, like "atrophy," are often due to maternal neglect or improper management (most notably in the administration of the various atrocious infant foods which flood the market and fill our waste-baskets with their "sample packages"), and sometimes are reported as causes of death, when they are really but forerunners of rapidly fatal febrile disorders. But in an unascertainable proportion of cases they are unquestionably the result of compression of the head during delivery, and in such instances, according to West, tend to recur without obvious exciting cause, and to retard or retrograde mental development, leading very often to later epilepsy. Beau (quoted in Reynold's System) found out of 211 epileptics, 17 (8%) congenital, and Hughlings Jackson observes that "epileptic fits in adults not rarely date from convulsions in infancy." Nothnagel assigns to overlapping of the cranial bones during forceps extractions, or to tedious and difficult labours, the causation of meningeal haemorrhage—usually extravasation into the meshes of the pia—from which the children in the majority of instances are either born dead or linger for a short time, or, rarely, recover to swell the morbidity of succeeding years. Erb refers to the occurrence of spinal meningeal haemorrhage from difficult or instrumental labour. The principal injuries to the child in dystocia or instrumental interference are,—depression or fracture of cranial bones with or without laceration of brain, "apoplexy of nervous centres," too tight hold of the forceps leading occasionally to hemiplegia, and ruptures of viscera.

These considerations emphasise the importance of sound judgment to decide between the dangers of compression of the head by the maternal genital passage or by the forceps,

and to determine when to apply the latter to the best advantage. It is undeniable that many lives which would have been sacrificed in the days of traditional prejudice against artificial aid are now saved; but there is reason to fear, with Playfair, that "the pendulum may have swung too far in the opposite direction." Not alone in simply tedious labours without indication of incompetence of the natural powers, but frequently to accelerate normal parturition, for the mother's comfort, or for economy of the accoucheur's time, forceps are used with as little regard for the welfare of the infant as the average street-car conductor has for the expectant passenger, or the "protectionist" legislator for the interests of the unprotected consumer, and, in inexpert hands, with a plentiful crop of maternal lacerations for the lucrative reaping of gynaecologists. Lawson Tait's disputed statement, that the infant mortality from forceps delivery in impacted labour is 1 in 7 or 8, is corroborated by Dr. Swayne (Brit. Med. Journal, April 26, 1890), who reports 211 instrumental extractions in difficult or protracted labours, "without reckoning complications," and 30 foetal deaths, or 1 in 7,—pointing out a hitherto unnoticed source of danger in the accidental pressure of the cord against the neck or head of the child by the blade of the forceps.

Excessive mortality—implying a still greater morbidity—continues through the first five years, the deaths during this period, in England, being 263,182 per million births. In this State, by the only method of calculation possible, they constitute 37% of the total deaths at all ages. Deducting the first year's fatality, the subsequent four years produce 113,689 deaths, of which 9,428 are from diseases of the brain, and 23,950 from respiratory diseases and phthisis. In Massachusetts, the registration reports, as cited by Dr. T. B. Curtis (Buck's Hygiene), attribute from 10% to 15% of all deaths under five to "tuberculosis and scrofula." More than half of the death and sickness of this first lustrum arises from insanitary environment (as is evident from a comparison of the statistics of healthy and unhealthy districts), and is there-

fore amenable only to general hygiene, and about one third from zymotic disorders; but of the remainder an important reduction may be hoped for in the progress of obstetric science and art. After the age of five years, official statistics afford no ground for even guessing the effects of dystocia or premature births upon mortality and morbidity; but the experience of most observant physicians will support the conclusion that they are by no means insignificant.

Turning now to the maternal aspect of the question, and relying, as before, mainly upon Farr's English statistics, we find that of the 488,255 girls born in the hypothetical million whence his "generation" takes its start, 342,281 pass the age of fifteen. Of these 79% or 270,402 marry. According to the inquiries of Sir James Simpson and others, about 10% of marriages are sterile; so that 243,362 of these wives bear children at the rate of 5.23 each, and 6,921 perish in consequence of the process, or 1 in 35 mothers in all their childbearings (2.8%), which is equivalent to one maternal death in every 183 parturitions. These figures apply to all classes of the population, and, of course, overstate the mortality where skilled assistance is at hand. Thus, the maternal mortality from childbirth is variously estimated by obstetricians as from 1 in 200 to 1 in 212, while Dr. Rigden (quoted by Farr) in 4,132 private cases had a death rate of less than 1 in 516. In the records of hospitals and of the experience of consulting obstetricians, more difficult cases, and consequently a higher rate of fatality, are likely to occur.

From our prophylactic point of view, it is desirable to discriminate the deaths directly due to the act of parturition from those caused by secondary puerperal diseases, and this has been done by Farr in his separate classification of "metria" and "other accidents of childbirth." We have further to consider the influence of age during the fertile period of woman's life, which in temperate latitudes may be regarded as extending from fifteen to a maximum of fifty-five. The following shows the ratio of deaths of mothers to the number of children born:

Age.	Metria.	Accidents of birth.	Total.
15 - 25	0.277 %, or 1 in 361.7	0.391 %, or 1 in 255.7	0.668 %, or 1 in 149.7
25 - 35	0.148 %, or 1 in 675.7	0.277 %, or 1 in 361.7	0.425 %. or 1 in 235.3
35 - 45	0.154 %. or 1 in 649.3	0.479 %, or 1 in 207.9	0.633 %, or 1 in 157.9
45 - 55	0.163 %, or 1 in 613.5	0.720 %, or 1 in 138.9	0.883 %, or 1 in 113.2
15 - 55	0.172 %, or 1 in 581 4	0.358 %, or 1 in 279.3	0.530 %, or 1 in 188.7

In the State of New York about one per cent. of the total mortality from all causes is returned as "puerperal," but this includes other accidents of parturition also. Nearly the whole of the mortality under the head of "metria" ought to be avoidable by aseptic midwifery and after-management, vastly diminishing the perils of the lying-in chamber, especially to primiparae, and obstetric skill may lessen that from other accidents of childbirth. We hear less now than thirty years ago of metritis or sloughing from too prolonged pressure, of rupture of the uterus, of fatal exhaustion or post-partum haemorrhage; but even with our better modern training, a great part of such preventable lethality will remain beyond our control as long as ignorant and uncleanly midwives conduct the majority of labours among the poorer classes; for, particularly in rural districts, nearly half of all confinements take place without the attendance of a physician. The enormous amount of morbidity entailed upon women who escape death is familiar to every one who has seen much of gynaecic practice. Moreover, it is among the overworked and often under-fed poor that malpresentations and pelvic deformities are most prevalent, and obstetric skill most needed. To demonstrate how much such skill may accomplish, Dr. J. T. Hartill (Brit. Med. Journal, Sept. 27, 1890) has recently reported the results of 2,000 consecutive confinements, largely among the wretched operatives in the "Black Country," comprising 14 cases of complete or partial placenta praevia, 61 pelvic presentations, 24 transverse, 60 contracted pelves, 29 cases of uterine inertia, 12 of rigidity of soft parts, and 1 of ovarian tumor; and 164 applications of the forceps (1 in 12 of all labours); yet, despite these adverse circumstances, there

were but 8 maternal deaths from childbirth, or 1 in 250 mothers; 2 from subsequent metritis, 1 from embolism, 1 from phthisis, and 1 from pneumonia—a total mortality, assignable to labor, of 11, or 1 in 182.

The term "aseptic" midwifery has been advisedly used, because in obstetrics, as in surgery, our duty should be to preserve from infection rather than to wait to combat it after it has occurred; and this is usually practicable in the domiciles of the well-to-do. Amid unwholesome surroundings, "antiseptic" measures may be prudently adopted; but these need hardly extend to a bichloride baptism of the child's advancing head, or to its birth into a carbolised fog,—and enough cases of obstetric poisoning by corrosive sublimate have already been recorded to render us cautious in the employment of strong solutions of so dangerous an agent.

Imprudence or mismanagement after parturition is a fertile source of local disease or general ill health, reacting, almost of necessity, upon subsequent offspring, and so, to a certain extent, upon the biological condition of the race.

Nothing has been said of the graver ventures of modern obstetric surgery, such as Sänger's modification of Caesarean section, Porro's or Thomas's operation, or the surgical treatment of extra-uterine pregnancy, for the reason that these are still *sub judice* among those to whom we must look for an authoritative opinion, and the cases requiring them are happily too few to warrant statistical deductions. The object I have had in view has been to present sufficient data whereon to base a conjecture, if nothing more, of the saving of life and health, which may yet be effected by obstetric medicine.

As regards social conditions, I have little to say beyond expressing the belief that misery rather than mid-wifery is responsible for most of the degradation which blots our vaunted civilisation. It may be that in some cases such misery is the outcome of physical disability dating from birth or parturition, but in more instances it is the result of acquired vicious habits. Social statistics show that the numbers of suicides, murders, and other kinds of crime, bear about the

same proportion to population every year; but of the aetiology of criminality nothing can be positively affirmed. Even those who dogmatically ascribe all the ill doings of the world to alcohol have still to find some antecedent factor, and to explain why the vast majority of consumers of alcoholic beverages refrain from crime. Inebriety is often the excitant, but the predisposition must be sought behind it. "*In vino veritas*" has a wider philosophical meaning than they who quote it ordinarily wot of.

Recent anthropometric examinations of convicts have frequently detected cranial malformation or asymmetry; it is not yet proved, however, that this is more common in criminals than in the law-abiding classes, and if it were, the wildest flight of fancy would fail to reach a guess of its possible connection with dystocia. If it be considered that civilised life is artificial, and that the absolutely natural man would be, in the eyes of the civilised man, an habitual criminal—gratifying all his animal propensities; taking, furtively or forcibly, whatsoever he coveted; killing his brother savage when prompted by any grievance; stealthy or violent in accordance to the degree of his strength and courage—then the "reversions to a lower type," which police records depict, may be better understood and imputed, after the hereditary transmission of an embruted organisation, to neglected childhood, lack of moral training, and evil communications.

The vexed question of heredity—not so much of disease as of proclivity to disease—has little relation to obstetrics, save as it has led some enthusiasts to imagine an impossible prophylaxis by forbidding the marriage of physically, mentally, or morally unhealthy persons, and in this way diminishing obstetric practice, except in illegitimate births; and it is doubtful if anything but a destructively retrogressive midwifery, or an increasing prevalence of oöphorectomy, can materially reduce hereditary morbidity, since delicate and, especially, consumptive women seem to be more apt to conceive and less likely to miscarry than their robuster sisters. As a "glittering generality," it may be asserted that every

obstetric advance which saves mothers from invalidism and children from incapacity for future effort must promote the social condition of the race; but politico-economic rules and the inexorable operation of natural laws will probably always overshadow, in this respect, the influence of medical science, or even of congressional legislation.

DISCUSSION.

Dr. A. Palmer Dudley of New York county, said that he had been asked to discuss the following question: "*To what extent have the surgical means of treatment of labour complications been successful, or should these complications, and the processes of repair, have been more generally left to nature?*" The last part of the question seemed to him obscure, as it did not state whether these complications were only those referable to the vulva and vagina, or to the uterus.

Speaking of the first part of the question, he said that the operation of craniotomy suggested itself to his mind as a prominent subject for discussion. It was an operation which doubtless had been performed many times by some of his hearers; yet, as obstetricians, we were in duty bound to respect the life of both child and mother. Religious teachings came in for consideration under this head; for those of the Roman Catholic faith were taught by their priests that craniotomy was an operation which should not be performed, as it involved the sacrifice of an unbaptised life. The parents were responsible in a measure for the perilous condition of the child, and were therefore required to assume all reasonable risks to save its life. For many years past there had been some in the profession who had insisted that in the case of labour complicated by contracted pelvis, tumor, diseases of the pelvic bones, great enlargement of the foetal head, or other causes of serious obstruction to labour, both child and mother could be saved by the performance of Caesarean section, and, as a consequence, this operation had developed from one characterised by great crudeness and fatality, to one which at the present time might be said to be very successful, and almost perfect. The speaker believed that in time it would, like other procedures in abdominal surgery, assume a position where its performance would involve scarcely any more risk than craniotomy, performed, as it was usually, after a tedious labour and attempts at instrumental delivery. The results of Caesarean section would be much better even now, if it were performed earlier. The history of such cases at present was about as follows: The patient laboured until she was exhausted, then the physician laboured with forceps until he was exhausted; the consultant did likewise; and, finally, when the mother was nearly moribund, Caesarean section

was attempted. Dr. Dudley contended that the surgical means employed in the treatment of labour complications had been successful, in that it had resulted in saving lives, by Caesarean section, which otherwise would have been sacrificed; and he firmly believed that with our present surgical resources it was only necessary to educate physicians and patients more carefully on this point to secure very gratifying results. The attending physician should always insist upon making an examination of the patient some time prior to her confinement. Information gained at this time would enable him to cope with a complicated labour much more readily; and if the result of the examination indicated the necessity of Caesarean section, this could be explained to the patient, thus giving her ample opportunity to consider the matter intelligently and dispassionately before giving her consent.

With reference to the second part of the question—"should these complications, and the processes of repair, have been more generally left to nature?"—he desired to ask where the gynaecologists got so many operations, and how was it that one so frequently saw cases of lacerated cervix, rectocele, cystocele, prolapse of the urethra, etc., if nature were able to do the work? He remembered well listening to a paper by Dr. Frank Hamilton on "The repair of laceration of the perineum" at the meeting of this Association in 1884, in which it was advised not to repair the injury immediately on account of the extra shock to the mother which it involved. In the discussion of the paper, another eminent member, the late Dr. Isaac E. Taylor, stated that he had seldom seen lacerations of the perineum, that he never sewed them up, and that he always had good results. In the few years which had elapsed since that time, a decided change of opinion was apparent, for to-day we had been told that such injuries should be promptly repaired. The speaker said that he claimed to be one of those who advocated this doctrine; and he thought that, except in very exceptional cases, the patient would never be in better condition for the operation. As the foetus had lived in the amniotic fluid for nine months, and when the bag of waters ruptured, this fluid thoroughly washed out the vagina, he had never seen any necessity for using the vaginal douche prior to delivery, and he had never had a case of sepsis.

The speaker digressed for a moment to refer to a not infrequent form of sepsis of obscure origin, which developed even in cases which had been treated antiseptically, and where there was no laceration of the cervix or perineum. He thought, if one could look into the abdominal cavity, disease of the ovaries and tubes would be found, and this would explain the origin of the sepsis. He thought he had seen such cases in hospital practice. Puerperal fever was to-day more often due to negligence after, than before, delivery; for, in cases unaccompanied by laceration, this condition rarely developed except as the result of gross neg-

lect, such as leaving a portion of the placenta in utero. He was in the habit of making a speculum examination after delivery, as the open vessels and abundant lymphatic connections rendered the woman peculiarly liable to sepsis. Such an examination disclosed the existence and extent of any lacerations which might be present; and he thought the time was near at hand, when the general practice of the profession would be to repair at once the injuries to the uterus by the use of animal suture. The difficulty would be to recognise the direction of the tear, but it was known that the laceration of the cervix was usually lateral, and seldom posterior. A catgut suture introduced here would keep the torn parts in apposition, and so close up certain channels favouring sepsis.

Regarding injury to the perineum, the reader of the opening paper made these four trite remarks: "nature will repair"; "nature will eliminate;" "nature will overcome;" and "nature will compensate."

Dr. Dudley's answer to the first would be,—Yes, she will repair injuries to the perineum, but—how? To answer this, the anatomy of the perineum must be consulted. It is made up of muscular and fibrous tissue; and the rectum and vagina have a double sphincter. The levator ani muscle arises by three portions—from the pubis, the ramus of the ischium, and the tuberosity of the ischium—and these, converging, join in the centre of the perineum by fibrous union, forming the sphincter portion of the vagina and giving to it its sphincter action. Each muscle of the body has a fibrous termination which is attached either to bone or some tissue capable of furnishing a fixed point. After crossing the perineum, a certain portion of the fibres surround the rectum, constituting the sphincter ani, which is supported by the bulbo-cavernous muscle. Passing transversely from the tuberosities of the ischium is the transverse perineal muscle.

Now, what is the result of an injury to the perineum? The laceration passes through the centre of the perineum, or from one side towards the centre, depending, the speaker thought, upon the position of the child's head as it passed over the perineum. It extended most commonly from the left sulcus to the centre; the next most frequent was through the centre; and still less commonly, the laceration was upon the right side. When a laceration of the perineum occurred, the muscles having their second point of attachment in the perineum were separated, and the muscle being freed from its attachments contracted towards the pubic bone, and is assisted by the natural contraction of the transverse perineal muscles. In a short time, separation of the aponeurotic attachment of the two halves of the levator ani muscle occurred. As nature could not bring the muscles together, she filled the gap with a soft scar tissue, which was chiefly non-contractile. The result was, that a portion, only, of the thickness of the vagina and rectum was repaired, and this formed no proper support for the pelvic floor. The forces of the body exerted

from above were transmitted along the line of the rectum, and acted directly against this weakened tissue, with the result of producing a recto-cele. Here the faeces accumulated, causing traction to be made on the posterior vaginal wall, and through this on the uterus. If the body of the uterus be abnormally heavy from subinvolution, it turns backward; and, these conditions continuing, prolapse of the organ results. This was the imperfect way in which nature repaired the perineum, and for that reason he was in favour of the immediate repair of the perineum.

He would omit the second quotation, and pass on to the third—"nature will overcome." Yes, nature would overcome the natural tone of the ligaments which support the uterus, and, in short, everything normal in the pelvis. Nor could nature "compensate" for what we could do for her at the time of the injury.

He heartily endorsed the remarks of one of the previous speakers concerning delivery of the child's head with the mother lying on the side, for, with the patient in this position, the perineum could be carefully watched, and if necessary, supported. If a laceration occurred, the blood and amniotic fluid flowed away from the freshly torn surface, and the parts could be repaired most conveniently without changing the patient's position. The shock from such an operation would not be so great as she would sustain a day or two later, when told that she was torn and that an operation would be required in the future. Immediately after delivery, the parts were benumbed, soft, and pliable, and the whole posterior vaginal wall and perineum could be easily everted with the finger. A few drops of cocaine, injected about the parts, would sufficiently anaesthetise the tissue to allow of the easy introduction of the suture. The nurse holds up the buttock, while with two fingers in the bowel the operator introduces a needle at the top of the ring, and with a fine continuous catgut suture repairs the injury. Even if primary union be not obtained in every case, the parts will be sustained long enough in position for partial union to occur, sufficiently at least to prevent the action of the muscles already described. In answer, then, to the second part of the question—"should these complications be more generally left to nature?"—his answer was, No: they should have been more generally repaired. He would even go so far as to say that if the rent only extended through the mucous membrane, it was advisable to introduce one suture at the time of the injury. He did not see that tying the patient's limbs together assisted the healing process. After the delivery of the child and inspection of the parts, hot douches should be given.

Dr. E. D. Ferguson, of Rensselaer county, said that he wished to say a few words in answer to the question, "What influence would a more advanced obstetric science have on the biological and social condition of the race?" He did not take so kindly to statistics as his friend Dr.

Carroll, but he had been interested in a noted astronomer's computation of what the population of the earth would have been, if in the days of the Pharaohs, three thousand years ago, there had been one pair, and that pair had doubled once in thirty years, allowing for loss by death at old age. It was found that the population of the earth at this time, if expressed in figures, would have been beyond our comprehension. This had suggested to the speaker a computation of the bulk of the solid mass of humanity, based upon the average cubic measurement of men. The result of this calculation showed that the bulk was equal to that of a solid sphere of humanity, having a diameter twice that of the orbit of the moon. The only comment which the astronomer made upon this was, that "we should be thankful for the gentle influences of war, pestilence, and famine"—and Dr. Ferguson would add, "the kindly offices of the obstetrician in the past."

ADDRESS ON OBSTETRICS.

By C. C. Frederick, M. D., of Erie County.

October 23, 1890.

Mr. President and Fellows: Since accepting the invitation extended by your committee to deliver the address on obstetrics, I have seriously questioned their wisdom in asking me to act, and have more seriously questioned my own wisdom in having accepted their invitation. I would that I could entertain you this evening with a learned, an erudite dissertation, teeming with new thoughts, and original. But, Mr. President, the field of obstetrics "is ploughed and harrowed by as restless and motley a throng as ever surged upon the Pacific slope for gold." The art of obstetrics is as old as the race. The necessities of childbearing woman have made it so. It received the earliest, it has always received the best, thoughts of the best minds in the medical world.

It is, therefore, left for no one man to startle or to entertain his fellow-obstetricians with a great array of new ideas. It does not seem best to ask your attention to any set subject in obstetrics, upon which I could shed little or no new light. I prefer to speak briefly of some of the more recent ideas in pathology and practice, and, at the same time, consider some of the moot questions which are most fruitful of discussion in obstetrical gatherings at the present day.

Of primary importance to the race comes the question of procreation of the species. Unquestionably, among most of the educated better classes of every community, childbearing is well-nigh what we might characterise a lost art. Among the peasant classes alone can be found the large families, such as those of which our sturdy American pioneers were so justly proud. There are both moral and physical causes

at work to prevent childbearing. Ignoring the moral and by far the most important aspect of this question, we are confronted by the fact that sterility among both males and females is an alarmingly frequent cause of unproductive marriages. Heretofore the ailments of women have been held accountable for this condition. Investigations recently conducted by Trent, de Sinéty, and Fürbringer show that in from thirty-six to fifty per cent. of unfruitful marriages the husbands are at fault. Gonorrhoea is one of the most frequent causes of this impotence in the male, as well as of sterility in the female. A distinguished American gynaecologist has stated that he has never seen a woman bear a child who has once had gonorrhoea. This has brought forth a great array of testimony in refutation. From what we know of the pathology of the uterine appendages, if there has been no gonorrhoeal salpingitis the woman need not necessarily be barren. The ailments of woman which cause or predispose to sterility are, in conformity with the erroneous pathology of fifteen or twenty years ago, too often incorrectly diagnosed, or incorrectly and too harshly treated.

The management of retained membranes and placenta in abortion has received considerable attention during the last year. Some of the profession favour the expectant plan, while many still prefer active interference. An abortion is either complete, or incomplete. Up to the end of the second month, because of the thickness and toughness of the deciduae, the membranes are usually not ruptured, and the ovum is cast off entire, making the abortion complete. During the third and fourth months, however, the membranes are liable to rupture, and, because of the intimate adhesion between the villi of the young placenta and the decidua serotina, their separation and delivery by uterine contraction alone, in a large percentage of cases, does not readily occur. So long as they remain in the uterus, the patient is exposed to the dangers of haemorrhage and septicaemia, besides being constantly harassed by the pain of uterine contractions. After having given the uterus a few hours' time in which to loosen

and expel its contents, the patient meantime being guarded from haemorrhage by a dilated colpeurynter in the vagina, correct surgical principles would dictate that the uterine cavity should be invaded; the retained membranes separated and removed by the fingers, the placenta forceps, and the dull curette; the uterus and vagina washed out with an antiseptic solution; and the vulva covered by an antiseptic occlusive dressing. Why men of large experience, having had broad surgical training, should favour expectancy in incomplete abortion is as incomprehensible to me as it would be if they were to wait for a ruptured pyosalpinx to set up a general peritonitis before doing a laparotomy. The writer has many times seen the disastrous results of expectancy, but has not a single ill result to record from active evacuation of the uterus in abortion.

Leith Napier has recently published an analysis of a large number of abortions. He finds that about eighteen per cent. are habitual, fifty per cent. are caused by uterine disease, and the rest by syphilis, traumatism, salpingitis, etc. The results of treatment showed seventy-eight per cent. cured and subsequently bearing healthy children.

Moses has shown, by an analysis of sixty-one cases of abortion, that the subinvolution following one abortion is a most frequent and direct cause of an abortion in a subsequent pregnancy. This probably accounts, in a measure, for the frequently recurring abortions that are called habitual.

Nephritis, albuminuria, and eclampsia have ever been, and probably will continue to be, as prolific a cause for discussion as their importance demands. The foreign and American journals during the past year have contained numerous contributions, some of them promulgating radical views, especially as to the advisability of interrupting pregnancy in chronic nephritis. Partridge, before the New York Obstetrical Society, advocated probably the most radical procedure which this subject has hitherto brought forth. He advises "that in all cases in which there is a reasonable probability that chronic nephritis exists, no matter to how slight a

degree, pregnancy should be interrupted just as early as gestation is known to exist."

I believe it is the general, although not universal, opinion of the profession, that premature labour should be induced, after viability of the child, in such cases of chronic nephritis as present symptoms decided enough to warrant it. Occasionally a pregnancy must be interrupted at an earlier period; but the milk diet, cathartics, diuretics, and diaphoretics will, many times, carry an unpromising case to such time as the child may be viable, or even to full term. But this is not considering the question in its entirety. There is another thought. If a woman become pregnant who has chronic nephritis, however slight or however serious it may be, whether the disease be consequent to a previous pregnancy or not, will the renal disease be aggravated and tend to run for her a more rapidly fatal course should she pass through pregnancy with her life? I believe the experience of the profession will warrant answering this question in the affirmative. Therefore, in the interests of the woman who has Bright's disease, these views of Partridge, which at first thought seem so radical, really are not so. In conformity with this idea, the earlier in gestation that chronic nephritis is discovered, the more necessary it is to interrupt the pregnancy. When the patient has gone nearly to the period of viability, every effort should be made to carry the pregnancy into the eighth month before inducing labour, provided the child is alive. According to Cohn, who has made a study of the effects upon the child of chronic nephritis in the mother during pregnancy, the foetal mortality is about eighty-seven per cent. from an analysis of fifteen cases. The cause of this mortality is placental endarteritis with necrosis of the connective tissue, thus interfering with the nutrition of the foetus and aëration of its blood.

Charpentier, Butte, and Riedow confirm Cohn's observations. Intra-uterine death of the foetus is often suspected from symptoms and absence of the foetal heart sounds; but not till the discovery by Koetnitz that peptone in the urine

of the mother denoted foetal death had we any positive means of diagnosis. When the foetus has been dead sufficiently long for decomposition of its cellular elements to take place, peptone is found in the urine. Peptone is not found when the foetus dies during labour, neither is it found in nephritis or eclampsia.

Every woman having chronic renal disease should be warned against the dangers of pregnancy.

Extra-uterine pregnancy actively occupies a large degree of attention among obstetricians and gynaecologists. The subject was ably discussed one year ago by the president of this society, Dr. Lusk. I refer to it here only to call attention to the decided difference of opinion which exists in the profession as to the plan of treatment before rupture, if diagnosed. That the diagnosis can be and has been repeatedly made, previous to rupture, is proved conclusively, despite the skepticism of Mr. Tait. The existence of ovarian pregnancy has also been disputed; but several unquestionable ovarian pregnancies, answering all the scientific requirements, have been reported by Leopold, Mann, Patenko, and Gottschalk. The difference of opinion as to treatment hinges on the question as to whether it is best to kill the foetus by the Faradic current, or to resort to immediate laparotomy, before rupture. The general belief is that the electrical treatment is not dangerous to the mother, although Baldy and Brothers report some alarming symptoms during or after the application, and Baldy reports a case of alarming peritonitis following a single treatment.

The laparotomists contend that if the current succeeds in killing the foetus, it is simply putting off the evil day when an abdominal section will be needed to remove the foetal remains; or the patient may be subjected to greater suffering and her life be more endangered by the passage of the foetal remains through the rectum, vagina, bladder, or uterus, which occurrence has several times been reported. The believers in electrical treatment argue, that if electricity does not give satisfactory results, they still may resort to

laparotomy. It seems that the electrical devotees are the more conservative, and, if they do not allow their conservatism to prevent their operating in proper cases at a proper time, there is little doubt that the favour of the profession will go with them.

In practical obstetrics, there have been several new or improved ideas advanced recently. Banta, of Buffalo, a member of this association, has described a method of converting face into vertex presentations which is believed to be entirely original in its technique. He takes advantage of the posterior sacro-cotyloid space as described by Landis in his theory of the pelvic double canal. The manipulation for the first presentation of the chin, L. M. A., consists in passing the "left hand up into the vagina or uterus (if need be) on the right side of the pelvis, well back, until it is stopped by the forehead or vertex. By now placing the fingers around the vertex, or any part that may be conveniently grasped, remembering that the hand is on the right side and to the posterior, enough force can be used (and only the slightest amount is required) to rotate the head anteriorly about a quarter of a circle, when the chin will look posteriorly and the face be in the left canal." The head should be pushed up during this manipulation, if necessary, so that the chin is above the brim. This is an important point to remember. The face is now in the position, L. M. P. There is now left a free space at the posterior part of the right canal, through which the hand is passed and placed over the occiput. The next point is to flex the head, and this is not always easy. To assist the internal hand, which is usually cramped by this time, the right should be placed externally, immediately over the internal hand, when downward pressure will produce flexion. The position is now R. O. A. "If flexion does not readily occur, it is because the chin has not been forced high enough above the brim." The head should be held in flexion, so as to prevent extension to face position again, till drawn into the pelvis by the uterus, or else forceps may be applied to hold it in flexion or to deliver. A knowledge of

the method in one position of the face is a key to the other positions. Dr. Banta, at last report, had seen twelve or fifteen face presentations, all of which he had succeeded in correcting by this method.

It is the experience of all obstetricians that not infrequently, after having delivered the head without a perineal tear, a pair of broad, fat shoulders may rupture it. To prevent this accident, delivery of the anterior shoulder and arm should be sought, and, when accomplished, the shoulders cannot tear the perineum. The secret of the manœuvre is not to support the head, but, on the contrary, to make gentle pressure upon the head and neck toward the perineum, when the posterior shoulder will distend the flaccid perineum to a sufficient extent to allow the anterior shoulder and arm to be delivered first. In support of this practice I can refer to the statement of Leonet, that the anterior shoulder first disengages in ninety out of one hundred cases, if the head is not supported; but if the head is supported, the posterior shoulder will first emerge in ninety out of one hundred cases.

Spiegelberg, Winter, and Budin have been advocating a procedure in internal (antepartum) haemorrhage diametrically opposed to that in common practice. Instead of rupturing the membranes at once, exciting uterine contraction and delivering as soon as possible, they advise not to rupture the membranes, with the hope that increased intra-uterine pressure will secure haemostasis. The writer has had an opportunity recently of putting the new practice to the test, with gratifying results.

Dr. Skeene has recently brought to notice a hitherto undescribed accident of labour,—injuries to the ureters. This accident usually occurs in primiparae or in multiparae during tedious labours. The patient progresses favourably for two or three days after labour, when, gradually, pelvic pain and tenderness in the lower part of the abdomen appears. In some patients there is retention of urine or frequent painful urination. The symptoms become more severe, with rigours, rise of temperature, and increased frequency of the

pulse. Soon after the accession of the severer symptoms, suddenly there appears in the urine a quantity of pus and sometimes blood. Renal casts may sometimes be found at this time. The pus in diminishing quantity continues to discharge for a week or more. The bleeding gradually subsides in a day or two, and the patient slowly recovers. As a result of the injury, there is swelling and occlusion of the ureter at this point. The sudden flow of pus, blood, and urine is accounted for by the pressure of urine overcoming the obstruction. If the occlusion is not overcome, there must follow nephritis, coma, and death. Examination by the vagina gives negative results, except that tenderness is detected high upon the affected side. Ureteritis following labour must be diagnosed by excluding peritonitis, cellulitis, metritis, general septicaemia, and abscess of the bladder. Ureteritis may be secondary to a metro-cellulitis following some of the ordinary injuries to the cervix or pelvic floor. In such case the pathological order is to some extent reversed, comes on later, is less severe, and is less dangerous.

The predisposing causes of injuries of the ureter during labour are found in a low position of the bladder and ureters, and an impaired nutrition of these organs during gestation due to oedema and pressure. When the membranes rupture before dilatation is completed, the cervix and bladder are carried down in the pelvis before the advancing head, thus exposing the ureters to danger of injury. The use of forceps in such cases is a frequent cause of injury. To prevent injury of this kind, complete dilatation should be secured, if possible, before the membranes rupture. If they do rupture early, and the cervix is tense, support the bladder and anterior vaginal wall, and secure retraction of the cervix over the vertex as early as possible.

The treatment consists in the recumbent position, anodynes, and the hot vaginal douche to improve the nutrition of the injured part. If there be retention of urine, the catheter should be carefully used. If cystitis complicates the case, irrigate the bladder. Diuretics, and especially saline

cathartics, act beneficially. In cases of complete occlusion with nephritis, operation may give relief and arrest a fatal termination; but Dr. Skeene has yet formulated no definite scheme of procedure.

The discussion between the advocates of the expectant method of placental delivery and the followers of Credé still continues, especially in Europe. Alhfeld, one of the champions of the expectant plan, reports 280 cases out of 304 delivered at the Marburg Obs. Klinik in 1888, in which the placenta was delivered spontaneously within one and a half hours after expulsion of the child. The remaining twenty-two needed assistance.

No doubt the expectant plan is the more natural; but, in private practice, an hour and a half is a long time to wait for a placenta. The objections urged against the method of expression are, that it favours postpartum haemorrhage, and that it conduces to retention of the membranes and to subsequent febrile disease. Ordinarily, the placenta is detached by the last expulsive contraction of the second stage, or by the one or two subsequent to the expulsion of the child. Why there should be any objection to stimulating the uterus to contraction by kneading and pressure, thereby expelling the already detached placenta, is incomprehensible. When the placenta passes the vaginal outlet, if care be taken to twist the membranes into a rope, and slowly deliver them during the period of relaxation which immediately follows the placental expulsion, there need be no danger of retained membranes, except in these rare cases, when the deciduae are so firmly adherent that manual or instrumental means of separation are necessary, whether the placenta be delivered by expression or by uterine action alone.

I contend that the experience of the American profession is not in accord with Ahlfeld, Winckel, and others, who accuse Credé's method with favouring postpartum haemorrhage and puerperal febrile disturbances. The expectant treatment of the placental stage may be applicable to hospital work, but not to private practice.

The depressing effect of long continued pain upon the vitality and powers of recuperation after labour is completed has not received the attention its importance merits. The accoucheur's long association with suffering woman tends to blunt the appreciation of the tortures that many, I might say most, primiparae and many pluriparae bear before complete dilatation of the cervix uteri is accomplished. It ought to be the aim of every obstetrician to mitigate the sufferings of parturient women to the utmost, and then they will have suffered more than they ought. By the judicious use of morphine hypodermically, chloral, chloroform, antipyrine, and other analgesic drugs, their labours may be made less painful without detriment to the patient. On the contrary, by lessening pain, dilatation is more rapidly accomplished, and the nervous system guarded from that shock, followed by depression, which it is so desirable to avoid. An anaesthetic administered as the head is fully distending the os uteri is as potent in securing its relaxation and retraction over the head as it is when given for delivery over the perineum. Thereby we guard against laceration of the cervix, of the pelvic floor, and, last, but most important of all, we guard against injury to the ureters. Dr. Skeene has well said,—"Lacerations of the cervix uteri and pelvic floor are important misfortunes, but they do not compare with injuries of the ureters in gravity of results.

Of late, an active interest has been manifested in the injuries to which the child is liable during labour. Dr. Parvin has told us in how many seemingly impossible ways the child suffers from labour, and how many times these suffering little cripples are the living monuments of the sins of omission or of commission of the accoucheur. Winkler and Bollaan in this field of research have paid especial attention to the neurotic ailments due to injuries in labour, notably idiocy. They find that out of 810 idiots, 35 were due to the application of forceps, and 216 to difficult or prolonged labour. They report autopsies upon 2 idiots, in whom cerebral atrophy is alleged to have followed pressure by the forceps.

Examination of the heads of 25 idiots showed the pressure marks of the forceps on both sides of 6 craniums. Well marked general atrophy of the brain was found in one case examined post-mortem, the indentation in the skull being one twelfth of an inch deep and one inch wide. Fletcher Beach and J. Langdon Brown do not think that idiocy is so much due to forceps pressure as to prolonged and difficult labour.

The Tarnier forceps, or forceps constructed on that principle, continues to increase in popularity. Would that it had a place in every obstetrician's bag, and was used instead of the ordinary long forceps at all times when a long forceps is needed!

Induction of premature labour, craniotomy, and Caesarean section for contracted pelvis are receiving a large share of attention at the present time. The introduction of the principles of aseptic surgery into obstetric operations has revolutionised them, and changed their former relations as to infant, and especially maternal, mortality. With the better technique and the constantly improving statistics of the conservative Caesarean operation, the hope has been entertained that it might ere long supplant craniotomy.

Any conscientious man hesitates, yes, abhors, to take the life of a child, even to save that of the mother. If the mortality after Caesarean section could be made anywhere nearly to approach that after craniotomy, no dream in obstetrics (but the already fulfilled prophecy of Semelweiss) could equal it. But the combined experience of the foremost clinicians has formulated a code which may be briefly summed up as follows:

Caesarean section can be substituted for craniotomy on a living child only when the mother so elects.

It is best, even then, to do a craniotomy instead, and insist on her having premature labour induced at her next pregnancy, because the prospects for pregnancy after Caesarean section, according to present returns, is not great.

The loss of children through perforation is compensated for in after years by the possibility of saving the children of subsequent pregnancies by premature labour.

Caesarean section, if done, must be done early, before the woman is exhausted; and, to obtain the best results, should never be done in private practice, and should only be done by experienced operators with every facility for the work. Dohrn, of Königsberg, reports that out of 318 cases of induced premature labour for pelvic contraction, the maternal mortality was 5 per cent. In 271 induced premature labours for contraction, 60.1 per cent. of living children were born, and kept alive. Carl Braun reports, from 1881 to 1888 inclusive, 51 craniotomies for pelvic contraction with a mortality of 1.95 per cent. Sänger reports 100 Caesarean sections, with maternal mortality 6 per cent. American statistics do not equal those given by Sänger. Dr. R. P. Harris, in a letter dated October 6, 1890, says,—"The work in this country, as far as reported for 1889–'90, shows 20 operations, with 12 women and 18 children saved [maternal mortality, 40 per cent; children's mortality, 10 per cent.]."

Leopold compares 22 cases of Caesarean section under the relative indications with 22 craniotomies under the same indications at his Klinik in Dresden, as follows:

Twenty-two conservative Caesarean sections, two mothers dead . . . mortality 9 per cent.

Twenty-two craniotomies and extraction, with a conjugata vera of 3 inches or less and children alive, 0 mothers dead. Mortality, 0 per cent.

Leopold concludes his comparison as follows:

After all this, it must be admitted as an unshaken fact that laparotomy is a much more dangerous operation than craniotomy. And since the life of the mother stands far higher than the life of the child, every man before determining upon Caesarean section must bring it pointedly before his soul that in perforation he can make use of the present natural passages of the cervix and vagina, while in Caeserean section he must make two altogether unnatural openings, that of the abdomen and that of the uterus, which must be closed again, and upon the union of which depend the health and life of the individual as well as the weal of her family.

The choice between the expectant and operative treatment of ruptured uterus has for a long time been shadowy in the minds of most obstetricians. The tendency has been toward operative treatment since the advent of aseptic surgery.

The experience of the larger number of operators shows that in suitable cases the expectant plan gives the best results by 12 per cent.

Corrosive sublimate continues to hold its place as the antiseptic par excellence in midwifery. The dangers of mercurial poisoning from it are being obviated by using weaker solutions than formerly, and by preventing its retention to any considerable amount within the uterus or vagina. Autogenetic puerperal infection is becoming more of a myth from year to year. Leopold gives some facts which have a most important bearing on this question. During 1886, '87, and '88, 248 women in the Dresden Lying-in Institution were delivered without any medical aid—never examined, touched, or syringed. Of these, 98 per cent. went through the lying-in without any fever, and only 5 of these patients had slight febrile symptoms. In contrast with these 248 cases and including them in his statistics, he states that out of all the women delivered in the same institution during the same period only 80 per cent. passed through the lying-in period without fever.

Puerperal infection from old tubal disease and puerperal metritis, peritonitis, and salpingitis from gonorrhoea contracted during pregnancy are not infrequently encountered. The purgative and operative treatment of puerperal peritonitis have failed to give the same success that they have in non-puerperal suppurative peritonitis.

Aseptic midwifery continues to give constantly improving statistics in maternity practice. It is a lamentable fact, that the lower classes, who must needs pass their puerperal period in these institutions, receive better prophylaxis against puerperal infection than does the woman who is delivered in her own home, ofttimes with everything that wealth and the tender solicitude of husband and friends can furnish. Who is responsible for this? For years the voice of the pioneer advocates of asepsis in midwifery has heralded to the general profession its results and the minutiae of its application. It is common property. If a class of the profession do not

practise it, they alone are responsible for their sins of omission. By aseptic midwifery I do not mean to be understood as advocating the drenching of everything about the lying-in woman with bichloride of mercury or any other chemical antiseptic, unless they be positively indicated: I mean cleanliness, as strict as a nail-brush, hot water, and soap can make it. If the physician will see to it that the patient, her bed, and the clothing of herself and nurse, be clean at labour and kept so after labour, and if he will rigidly observe strict cleanliness in all his relations to the patient, then will the highest form of asepsis be realised. If the physician has been in contact with infectious material, in addition to thorough washing of hands a scrubbing in a bichloride solution of one to two or three thousand is prudent,—yes, necessary. The successes in laparotomy by this plan teach us what we may expect from it in obstetric practice. I know, and every consulting obstetrician knows, that asepsis as we often see it applied in private practice is a farce. Why is this? Because the physician who does not give his patient the benefit of this advanced idea in medicine is either lazy, careless, ignorant, or thinks that cleanliness is only necessary in maternity hospitals.

In an address on obstetrics and gynaecology before the first annual meeting of this Association—and I cannot better close these remarks than by quoting his prophecy—Dr. Thomas said,—"Supposing that only one life be saved of a hundred deliveries, will any one assert that the saving of this one life would not repay him for the trouble which his preventive precautions have cost? If the whole theory of the bacterial origin of puerperal fever be false, then in a quarter of a century from now all precautionary measures will disappear, and the old régime will triumph. But if, perchance, the theory be valid and true, then no human power will prevent the realisation of the prophecy that aseptic midwifery will be a rule as strict, as inviolable, and as obligatory as the aseptic surgery of amputations and laparotomy is to-day."

SOME CLASSICAL ALLUSIONS TO MEDICINE AND SURGERY.

By the Hon. Charles H. Truax, LL. D., of New York City.

October 23, 1890.

Homer says, and Pindar agrees with him, that physicians are descended from the gods themselves, and I suppose that none of you will deny the statement. In fact, one of the attributes of Apollo, the Sun-god, was that of healing. He was the healer as well as the destroyer. Like modern physicians, he sometimes cured, and sometimes killed. He is frequently called σωτήρ or the preserver, and Aeschylus in his Eumenides calls him ἰατρὸς μάντις; but in Homer he has no healing function. You remember that the Hippocratic oath begins, "I swear by Apollo the Physician, by Aesculapius, by Hygiea, and Panacea." Now this Aesculapius was the son of Apollo, and was brought up by the Centaur Chiron and taught the art of healing, and from this Aesculapius is descended the race of physicians. So you see that you really are of divine origin.

It may be that the myth that Aesculapius was taught the art of healing by Chiron, a being partly horse and partly man, arose from the fact recorded by Pliny in his Natural History, Chapter 8, Section 41, that the early physicians learned the medical properties of many plants and some of the simpler surgical operations from animals,—or it may be from the well known fact that most physicians possess a great deal of horse sense. This, however is a suggestion of my own, and is not in Pliny. For instance, Pliny says that the practice of bleeding was first used on man because a hippopotamus was seen to bleed himself, and that the use of clysters was first shown to man by the ibis, while dogs taught the Egyptians the use of purgatives.

I am inclined to believe the story about the ibis, because a friend of mine, in whose veracity I have the utmost confidence, told me that he once saw a crane, a bird not dissimilar in shape to the ibis, take an eel out of the water and swallow it. The eel went through the crane, and dropped out behind. The crane turned around and saw him there, and again swallowed him. Again the eel went through the crane. The crane hesitated a moment, evidently in thought, and then, swallowing the eel, sat down upon a stone and remained there for some time,—showing that the crane possessed reasoning powers, and that he knew that he would be nourished by the eel, although the eel was in the lower canal and not in the stomach. It was some such sight as this that suggested to mankind the enema.

But perhaps that one of the gods who, more often than any other, aided the physicians of the "antique world," was Hermes, who was known among the Egyptians as the guide of physicians, for he was the god who conducted the souls of the dead to the other world; and I understand that even now, under his Latin name, Mercurius or Mercury, he is often invoked by physicians.

Aesculapius is usually represented with a serpent near him. Whether this was meant to indicate that a physician should be as wise as a serpent, or whether it meant, as we are told by Hyginus, a writer of the Augustan age, that he was taught how to restore mortals to life by seeing one serpent restore a dead serpent to life, I do not know; but it is interesting in this connection to notice that the Israelites were restored to health by looking at the brazen serpent.

On the other hand, may not these stories indicate that both the Greeks and the Israelites derived their knowledge of medicine from the Egyptians, among whom the serpent god Cneph was worshipped as the restorer of health?

It is no wonder that the ancients thought that physicians were descended from the gods, if what we read of the fees that are said to have been paid to some of them is true.

You may remember that, in that interesting work by Ebers,

"The Egyptian Princess," mention is made of the Greek physician Democedes, a native of Crotona in Magna Graecia, who lived in the sixth century before Christ. Herodotus says of this physician that the Aeginetans paid him from the public treasury one talent, say $1,700, a year; that afterwards the Athenians paid him one hundred minae, say $2,000, a year; and that Polycrates, of Samos, paid him two Attic talents, say $2,500, a year. Now, considering the relative purchasing power of money at that time and now, these sums should be multiplied by twenty, so that he would receive for his services in the money of to-day, in the first instance $34,000, in the second, $40,000, and in the third $50,000, a year—a very respectable income in view of the fact that he probably had the right to practise on other patients! By the way, this Democedes is the man who first brought the Persians to Greece.

But the sums paid Democedes are nothing compared to the sum that Pliny, in his Natural History, says that Erasistratus received for curing Antiochus, the son of Saleucus Nicator, King of Syria. The sum mentioned is equal to $120,000. Undoubtedly this is the largest fee ever given to a physician; but if the story of the cure is true, it was well earned.

Antiochus was very sick, and none of the physicians of the court were able to effect a cure. In fact, they were unable to tell of what disease he was sick. Erasistratus was then called in, and for a time he was not able to define the disease, until one day he saw Stratonice, the daughter of Demetrius Poliorcetes, enter the room. Now this Stratonice was the wife of the father of Antiochus. The physician observed a flushing of the face and a quickening of the pulse in Antiochus, and knew that he was sick with love for the wife of his father, and not with any other sickness.

The king waited anxiously for the report of Erasistratus, and finally the physician told the king that his son was sick of a disease that could not be cured. "Of what nature is this disease?" said the king. "He is in love with my wife," said the physician. "And would you not give your wife to the son of a king?" asked Saleucus. "And would you give

yours?" said the physician. "Willingly," said the king. Then the physician told him the real facts of the case, and the king gave Stratonice and a kingdom in western Asia to his son. For such a service as this the physician deserved to be well paid.

But it was not every physician that had his Antiochus, for Crates, the philosopher, says that a rich man of his day would pay a sycophant $4,500, and a moral adviser *smoke;* his girl $1,000, and a philosopher *ten cents;* his cook $150, and his physician *twenty-five cents.*

I said some time ago that Homer makes the first Hellenic physicians to be descended from the gods. In his time, as in later times in Greece, prophets and physicians were public functionaries; but Pliny says that the first physicians were found among the Egyptians; and Herodotus, when he visited Egypt, found that medicine among the Egyptians was practised on a plan of separation, and that each physician treated a single disorder and no more. Thus it comes, says he, that the country swarms with medical practitioners, some undertaking to cure diseases of the eye, others of the head, others of the teeth, others of the intestines, and others diseases that are not local. In fact, such a separation is indicated or hinted at by a portion of the Hippocratic oath, which is to the effect that the physician will maintain religiously the purity and integrity both of his conduct and of his art, and will not cut any one for the stone, but will leave that operation to those who cultivate it.

The Egyptian physicians were also the first to make collections of medical observations, since records of the manner in which cures had been effected in the temples of Aesculapius were kept in those temples, and undoubtedly served as precedents. The temples of Aesculapius were also to a certain extent the first hospitals.

Ebers, whose name I have already mentioned, found a papyrus of the sixteenth century before Christ containing the Hermetic book upon the medicine of the ancient Egyptians. In this venerable scroll, he says, "diagnoses are made, and

remedies suggested for the internal and external diseases of most portions of the human body." This undoubtedly is one of the oldest, if not *the* oldest, medical work in existence.

Many jokes are to be found in the classics upon physicians, a few of which I shall mention. Plato said that physicians were the only men that might lie at pleasure, since the health of the listener depended upon the falseness of their promises. (Republic 3.) Nicocles said that physicians had this advantage,—that the sun gave light to their success, and the earth covered their failures: while Pliny said that physicians and soldiers were the only classes who could kill men with impunity. They had no coroners in those days,—which was an advantage to the physician; neither did they have post mortem examinations,—which, in view of what took place in the Bishop case, is an advantage to the man wrongly supposed to be dead. And Aesop tells us that a sick person, being asked by his physician what effect the potion had had on him, answered,—"I have sweated very much." "That is good," said the physician. Asking him again the same question, the sick man answered,—"I have been very cold, and have had a great shivering." "That is good," replied the physician. After the third potion, the physician asked him how he did, and the sick man answered, that he found himself "swelled up as if he had the dropsy." "That is good," said the physician. A friend of the sick man inquiring how he was getting along, the sick man said, that with being too well he was about to die.

But the ancient poets did not always make fun of the physicians. One of the oldest of epitaphs is the epitaph of Empedocles the philosopher, B. C. 450, on the physician Pausanius, and is as follows:

> Pausanius, not so named without a cause,
> As one who oft has given to pain a pause—
> Blest son of Aesculapius good and wise—
> Here in his native Gela buried lies;
> Who many a wretch once rescued by his charms
> From dark Persephone's constraining arms.

This, you will notice, is a punning epitaph, and so it is in the original Greek. The Greeks were great punsters. A charming idyl, by Theocritus, the 28th, was sent by him with a distaff to Theugenis, the wife of Nicias, a physician of Miletus. I give a portion of the translation made by Andrew Lang:

> But now shalt thou abide in the house of a wise physician, who has learned all the spells that ward off sore maladies from men.

In the 24th idyl mention is made of the use of sulphur—"unmixed sulphur"—as a disinfectant. In another, the 11th, Theocritus prescribes for the physician Nicias, who is in love. "There is," says he, "no other medicine, Nicias, against love, neither unguent nor salve to sprinkle,—none save the Muses of Pieria. Now a delicate thing is their minstrelsy in man's life, and a sweet, but hard to procure. Methinks thou knowest this well, who art thyself a leech, and beyond all men art dear to the Muses."

Music was often prescribed in cases of sickness by the ancient physicians, but probably this is the first time that it was ever prescribed as a cure of love. Shakespeare suggests that music is the food of love, but Crates the philosopher prescribed a bath as a cure for love. David played before Saul to cure him of his madness, and Aulus Gellius says that the pains of the sciatica may be assuaged by the soft notes of a flute. One of the chapters of D'Israeli's Curiosities of Literature is on medical music.

Herodotus gives a very interesting account of the method of treating sick people among the Babylonians. He says,—

> They have no physicians, but, when a man is ill they lay him in the public square, and the passers-by come up to him, and if they have ever had this disease themselves, or have known any one who has suffered from it, they give him advice, recommending him to do whatever they found good in their own case, or in the case known to them; and no one is allowed to pass the sick man by in silence without asking him what his ailment is.

This method of treatment has survived until this day; for

even now, in this country, everybody has a remedy for rheumatism and gout.

A very curious instance of a cure of gravel is given by Cicero (de Div. 2, 69). "Dicitur quidam, quum in somnis complexu venereo jungeretur, calculos ejecisse." I think that a like cure was effected when an acquaintance of mine was begotten—he is such a calculating fellow.

Most of the allusions in Homer are rather of a surgical than of a medical nature, although in his day the ἰατρός was physician as well as surgeon.

We are told, in the fifth book of the Iliad, how Diomedes grasped in his hand a stone such as two men, as now are, would not avail to lift; yet he with ease wielded it alone, and therewith smote Aeneas on the hip where the thigh turns in the hip-joint (and this men call the "cup-bone"), and crushed it, and brake both sinews withal; and the jagged stone tore apart the skin, and the darkness of night veiled the eyes of the hero.

Now this undoubtedly would be considered by modern surgeons quite an injury, and it was then so considered among men, for Homer says Aeneas would have perished had not Apollo carried him away to Pergamos, where his temple was: there he was healed by Leto and Artemis, which is perhaps the first recorded instance of a cure effected by female doctors. Afterwards a law was passed among the Greeks that neither slaves nor women should act as doctors. We are not told what method of treatment was followed by these physicians, doctors Leto and Artemis, but it was undoubtedly the best method, for it was so effective that Aeneas immediately went back to the fight.

It is a great pity that Homer did not give us the method of treatment used, although perhaps you would think it a little too quick. The hero was cured, you notice, in one visit. But while we are not told the course of treatment followed by doctors Leto and Artemis, yet in the same book we are told how Paeon laid assuaging drugs upon the wound that Mars had received in the nethermost belly, and healed

the wound. "Even as fig-juice maketh haste to thicken white milk, which is liquid, but curdleth speedily as a man stirreth, —even so swiftly healed he impetuous Mars."

In Book II we are given somewhat more in detail the course of treatment followed in another case. Eurypylus had been wounded in the thigh with an arrow. He was taken to a hut beside the ships, and stretched at length upon the ground upon skins of oxen. The arrow was cut from the thigh, and the black blood was washed from the wound with warm water, and on the wound Patroclus put "a bitter root, rubbing it between his hands—a pain-killing root, and ended all his anguish, and the wound began to dry, and the blood ceased." This root is supposed to be either the Achillea (Yarrow), or Aristolochia. The Greeks used both plants as anodynes. But it took longer to effect a cure by this method than it did by the method employed by Leto and Artemis, for we are told in the 14th book that, a day or so after the event above spoken of, Patroclus sat in the hut of the kindly Eurypylus making him glad with talk, and on his cruel wound laying herbs to assuage his dark pain.

But the leeches did not always cut the arrows out. Machaon, who was a pupil of his father Aesculapius, when he was called in to see Menelaus, pulled out the arrow with which Menelaus had been wounded, so that the barbs were broken backwards, and he sucked out the blood, and cunningly spread thereon soothing drugs.

In this instance, the wound was in the thigh; but when Diomedes was wounded in the shoulder by Pandarus, Lycaon's glorious son, the arrow was drawn right through the wound, and the blood darted up through the pleated *chiton*, or doublet.

The knowledge of surgery possessed by Homer was not very great, but he noticed that inflammation did not set in until after the blood had ceased to flow, for in the 11th book he says that Agamemnon, though sorely wounded, kept in the fight with spear and sword so long as the hot blood gushed from the wound; but when the wound became dry,

and the blood ceased to flow, then keen pangs came over him, such pangs as come to a woman in child-birth. His knowledge of anatomy was still less: for instance, he speaks of the vein that runs up the back until it reaches the neck.

Even Plato, the philospher, thought that what we drink first went into the lungs, and, having sufficiently moistened them, passed through numerous channels, and flowed to the bladder. (Aulus Gellius, book 17, ch. 11.)

One idea of the knowledge of the ancients on this subject, perhaps as good as any, is to be found in chapter 10, book 18, of "The Attic Nights of Aulus Gellius," a writer who flourished about one hundred and fifty years after Christ:

During the heat of the summer I retired to the country-house of Herodes, in the territory of Attica, at a place called Cephisia, diversified with groves and rivulets. While there, I was seized with a violent diarrhoea, accompanied with fever. At this place, when Calvisius Taurus, the philosopher, and several of his followers, who came from Athens to visit me, were met, the physician of the village, who was sitting by me, began to explain to Taurus what the nature of the complaint was that I was afflicted with, and with what degree of force, and at what intervals, the fever made its return; then, in the course of his argument, having said I was mending, he added, and you, Taurus, may satisfy yourself of this, if you will lay your finger upon the vein.

When the learned men who were with Taurus had heard the physician speak in so illiterate and improper a manner, calling the artery the vein, attributing his error to ignorance, they began to whisper to each other, and to signify their disapprobation by their looks; which when Taurus observed, turning with great mildness, as his custom was, to the physician,—"We have no doubt, worthy Sir," he said, "that you are not ignorant of the distinction between arteries and veins; you know that the veins have no power of moving themselves, and that we only examine them for the purpose of drawing away blood, but that the arteries, by their motion and pulsation, show the state of the health, and the degree of intenseness of fever; but it is easy to see that you spoke rather with a view to accommodate yourself to the common mode of discoursing, than through ignorance of the nature of the vessels, and you are not the only person I have heard speaking so incorrectly, calling the artery the vein; let us then have the pleasure of seeing that you are more expert in curing diseases than in discoursing upon them, and may the gods bless your endeavours."

When I reflected afterwards upon the circumstance of the physician

being reproved for speaking incorrectly, I considered that it was not only indecent for a physician, but for any person who has been liberally educated, to be ignorant of the structure of those parts of our body which are not difficult of investigation, and which nature has made easily intelligible, that we might be enabled to take the necessary precautions for the preservation of our health; and therefore, whatever time I could spare from my necessary avocations, I employed in reading such medical books as I thought were best calculated to furnish me with instruction upon those subjects.

Amongst these, with many other matters not foreign to the purpose, I remember to have read on the subject of the veins and arteries, nearly to the following purport: A vein, called by physicians ἀγγεῖον, is a receptacle for the blood, mixed and blended with the vital spirit, in which the blood is in a much greater proportion than the spirit; an artery, on the contrary, is a receptacle for the vital spirit blended and mixed with the blood, but in which the spirit predominates.

Σφυγμός, *pulsatio*, or the pulse, is the natural and involuntary motion, or contraction and dilatation, of the heart and arteries: by the ancient Greek writers it is called the systole and diastole of the heart and arteries.

I shall close my extracts from the classics with two extracts from Aeschylus,—one from the Prometheus Bound:

> Like leech unskilled
> Thou losest heart when smitten with disease,
> And know'st not how to find the remedies
> Wherewith to heal thy sicknesses.

The other is from the Agamemnon:

> And where there's need of remedies,
> There will we with good will, by cautery,
> Or by surgery, try to avert disease.

The Agamemnon was written about four hundred and sixty years before Christ, which is probably before the time of Hippocrates.

It is doubtful whether some of the diseases that now afflict humanity were known to the ancients. Gonorrhoea is mentioned in Galen, but syphilis is not; and perhaps this last disease was not known to the ancients, although some sup-

pose that the "disgraceful disease," of which Speusippus, Plato's nephew, is said to have died, was this disease. One would suppose, in view of the frequent allusions to the disease by modern writers, particularly by the Elizabethan poets, that if it had been known to the ancients, such poets as Horace, Juvenal, Perseus, and Martial would have alluded to it in terms that would have left no doubt; but such is not the case. But, however, there are a couple of lines in Martial which may refer to this disease:

> Ficosa est uxor, ficosus et ipse maritus,
> Filia ficosa est, et gener, atque socer.

From this it would appear that the whole family had it.

You may remember that ancient Pistol uses the expression "and fico for thy friendship; the fig of Spain." This—fico or fig—says Gifford, "is a coarse representation of a disease to which the name of ficus had always been given."

The disease is said to have been brought over from the West Indies by the first Spanish navigators. If it was brought over by them, it spread itself very quickly over a large extent of territory, for books were published in 1497 and 1498, in Rome and in Venice, in Leipsic and in Vienna, on the Morbus Gallicus. This term is probably a pun on the word "Gallicus," which means "of or pertaining to a cock," and is not an intimation that the disease originated among the French, or was peculiar to them.

It would not be proper, in a meeting at which the learned author of Medical Nomenclature is present, and in a paper that was suggested by him, to omit all attempt to explain the derivation and meaning of medical terms. It is with diffidence that I venture my suggestions to so learned a body of men: however, you may take them for what they are worth.

Webster says that the etymology of the word "syphilis" is unknown. I venture to suggest that it probably arose in this way: Some young Greek was asked where he got it, and he answered in colloquial Greek, συν φυλλίς—from Phyllis—or, to express the sound with Roman letters—Syphilis.

After the physician had finished attending the sick man, his friends took the body, and washed it with perfumed waters, and anointed it with olive oil, and laid it on a bier, and covered it with soft cloths from head to foot, and put thereover a white robe; an obolus was placed in the mouth of the corpse, in order that it might have wherewith to pay its ferriage across the Styx. A crown of flowers was put on the head. A robe was put on it, that it might not get cold on the way to Hades, nor be exposed in its nakedness to the dog Cerberus. The body was kept two or three days in order that the relatives and friends might see it, and see that it was dead, and then it was either burnt or buried.

SOME OBSERVATIONS ON BONE AND SKIN GRAFTING.

By Benjamin M. Ricketts, M. D., of Ohio.

October 24, 1890.

Some time during the month of September or October, 1884 (soon after my arrival in your city), I received a notice stating that a meeting would be held in the then uncompleted Murray Hill hotel, on November 20, following, for the purpose of organising a society which should be known as the New York State Medical Association.

On the appointed day was organised a society that has received the most hearty coöperation of the medical profession lying not only within the bounds of this, the greatest State of our land, but of all her allies.

There is but one medical society in this country whose membership exceeds yours in number, and that is the American Medical Association of which this is an auxiliary. That such a society should have been established has been thoroughly demonstrated, and I would extend the hand of cordiality and offer my congratulations, together with a modest contribution, the points of which have been gleaned mostly from personal observation. Thus it is that I am with you on an occasion which has promised to be of such manifold interest. "For I was a hungered and ye gave me meat: I was thirsty, and ye gave me drink: I was a stranger, and ye took me in."

Skin grafting or dermapenthesis (Dr. G. F. Cadogen-Masterman) in the vegetable kingdom has been developed to such an extent that there is hardly any limit to what can be done in the way of repair and production, beauty and financial gain being the principal desiderata.

While the results of grafting animal tissue are less successful than those of vegetable tissue, much has been done to convince us that the limit is far beyond anything yet attained.

The shortcomings in this are no doubt due to the fear people have of being experimented upon ; but now that even the uneducated have every evidence of good results from this source, we may rest assured that the progress toward perfection will be more rapid than ever before. Failures at this age play no factor in retarding progress. The creation of life, and the conversion of material things into non-material, and non-material into material things, are the only unquestionable impossibilities.

Of the many questions that arise in my mind relative to the subject of bone and skin grafting, there are three most prominent, namely,—

1. When and how should skin be grafted upon raw surfaces caused by injury, or by the removal of malignant or non-malignant growths ?

2. How and when may bones be restored ?

3. Should fragments of normal bone be permanently removed except in case of amputation ?

An all around reply to either one of these questions would occupy more time than has been assigned to me, so that, to do my utmost, I cannot do more than briefly make mention of them. However, in so doing, I shall endeavour to speak on their most essential points.

Literature has fairly teemed, within the last ten years, with the wonders wrought in this particular department of surgery ; however, greater work has been done and more has been written upon *Dermapenthesis* than *Osteopenthesis*.

The oculists especially have displayed unbounded energy and exalted skill, as shown by their success in transplanting the cornea of the cat, dog, and rabbit to the eye of human beings, and of mucous membrane to the conjunctiva for the correction of deformity as the result of "ophthalmia neonatorum," the greatest success being in blepharoplasties four or five days after the lid has been relieved, there being no haem-

orrhage or secretion (the two greatest causes of failure) at that time.

It is now demonstrated that the nerves of lower animals may be successfully transplanted to the nerve stumps of man. (Dr. Gersing.)

Dr. Redart (Academie de Médicine, Paris) successfully grafted the skin of a chicken upon a child two years old.

Dr. Bartens (Berliner Klinesche Wocherschrift, August 6, 1888) succeeded in grafting the skin of a dead man, aged 70, to that of a boy 14 years old.

Dr. Wolfler was equally successful in transplanting the mucous membrane of frogs, rabbits, and pigeons to mucous areas in man previously occupied by cicatricial tissue, and was the first to show that mucous membrane remains as such if transplanted to mucous membrane, but becomes skin if transplanted to skin areas.

I succeeded (twelve years ago) in grafting the skin of a frog to that of a tortoise, and the skin of a tortoise to that of a frog; also, in securing the growth of a frog's skin upon the skin of a man 54 years of age.

It has been by practical demonstration, that I am convinced that sponge-grafts hasten cicatrisation of integumental wounds from various causes; also that the prepuce of a boy is especially good for this purpose, in fact, is one of the most satisfactory of all kinds of cutaneous grafts.

Shape of Grafts: The smaller grafts may be either scrapings, chopped epithelium, shavings (circular, triangular, or ribbon shaped), or they may be with or without a pedicle.

While the shape may be of minor importance with reference to the smaller ones, I prefer the triangular, or those with ragged edges, as they are not so inclined to curl up—a condition which makes the risks of union more hazardous.

Question I. When and how should skin be grafted upon raw surfaces caused by injury, or by the removal of malignant or non-malignant growths?

I will limit this question to the cases where the edges of

the resulting wound cannot be immediately coäptated, coaptation being given preference under all circumstances; and my experience has taught me that pedunculated flaps (especially, if sliding) should receive secondary consideration, and even with individual grafts, with the proper precautions, their size need not be limited. In either case, the earlier the grafting can be done the more favourable will be the result.

In case of the larger naevi, I can see no reason why their complete incision cannot be followed immediately by transplanting a piece of integument of sufficient size to cover the entire area, the haemorrhage having been completely checked by hot water and torsion, these being the only measures used for styptic effect in any case in which grafting is to be done.

Question II. How and when may bones be restored?

I would include in this class those cases in which we undertake the restoration of the bones of the hands, feet, arms, or legs that have been removed by injury or surgical interference without amputation.

Bone Grafting—Osteopenthesis—while not so far advanced, is as much a matter of practical success as skin grafting.

Enough has already been done to show that its confines are not narrow by any means.

Poncet (of Lyons) restored the tibia within nine months by grafting to the superior articular surface. The replanting of trephine buttons is now the rule, the brain is better protected, recovery more rapid, and the continuity of the cranium preserved. Who has not heard of the great achievements of the dentists in transplanting, replanting, and implanting teeth?

The series of experiments that I have adopted to show what can be done in the way of substituting, that is, transplanting the bones of one animal to another, is not complete, but enough has been accomplished to satisfy me that the day is not far distant when the long bones and ribs of the lower animals will be successfully transplanted to man for the purpose of restoring osseous structures destroyed by any cause whatsoever.

I am inclined to believe that the tails of such animals as the dog, cat, opossum, etc., after being divested of the integument and soft tissue, may be transplanted with success, as the various joints become anchylosed. They may perhaps supply a long felt want.

It may be found that the ribs of the lower animals can be substituted for metatarsal and metacarpal bones. In all cases as much of the periosteum should be preserved as possible, and the bones should be cut with a knife or the finest saw that can be had, preference being given to the knife, as thereby the ends of the bones are smoother—a condition more likely to be followed by good results than if severed by a saw.

I have not yet been able to save a finger in which (in case of injury) the bone was completely divided by a saw. I have, however, been successful in securing union in several instances where the bone was severed by a sharp-edged tool.

In all cases of injury when the bone is divided by the saw, there is more or less foreign matter, fine in character, carried into the wound, and its removal is attended with the greatest difficulty. It is these two elements, a roughened bone surface and foreign matter, that make union difficult, and yet with the larger bones it is absolutely necessary to use the saw; but this once done, the ends may be scraped and perfectly coäptated, after which the periosteum overlying the two bones is brought together, and stitched with fine catgut.

I will say in this connection, that I do not favour the use of the forceps in amputating any member, the objection lying in the possibility of fracture. The saw should invariably be used. With the forceps the work is *more rapid but less scientific*, and there is no excuse for any man's applying them in amputation.

Question III. Should fragments of bone be permanently removed, except in case of amputation?

Bone Fragments: In either compound or compound-comminute fractures, where a bone is crushed or broken into two or more pieces, the greatest care should be taken to replace

the fragments, and to offer every opportunity for their union, that its strength and original shape may be preserved. That this may be more certain, all clots and foreign matter should be cleared away, and shreds of tissue removed from between the fragments, which should be immediately restored to their proper places.

In some cases, as in the long bones, the fragments may be firmly brought together with silver wires, which may afterwards be removed.

With Collin's needle the wire may be passed snugly around the main bone, encompassing any fragment that may be detached, or if there are several fragments they may likewise be secured.

The wire once around the fragments, it may be tightened by means of an Aveling coil, and securely fastened with a shot through which a hole has been drilled. By this convenient means the wire may be removed at any time, or it may be allowed to remain.

I look upon exploratory incisions, in cases where the condition of the bone cannot be determined, as justifiable, and as being the only means to determine the exact condition, clean surgery being our safeguard.

ADDITIONAL REMARKS.

The author showed some small wire coils, known as Aveling coils, made out of an alloy of platinum, aluminum, and silver. They were intended to be threaded upon a wire suture, and held in place by a perforated shot, clamped upon the wire in the usual way.

He also exhibited an ingenious instrument looking something like a spiral tenaculum, which a friend had devised for tying an artery upon itself without the use of a ligature. Its action was illustrated upon a piece of rubber tubing.

Another interesting exhibit was a piece of bone, showing the effect of dividing a bone with Dennison's "rib cutter." The specimen showed that in eighteen days nature had

endeavoured to bring about repair by throwing out new bone almost half an inch from the point of injury. The speaker called attention to the crushing action of such instruments, and advised against their use in bone operations except where there was necrosis or other disease of the bone. The saw, in his opinion, was a much better instrument for cutting bone.

At the suggestion of the secretary, Dr. Ricketts referred to the recent use of ivory plugs in bone surgery. He said that he was much interested in the attempts which had been made in grafting heterogeneous tissues, and he intended in the future to publish his results in detail. It had been found impossible to graft bone upon any other structure than bone, or an epithelial structure upon another kind of tissue. It had been long ago demonstrated that the spur of a cock could be grafted into his comb, and that ivory and horn could also be grafted into the comb: but all these tissues were composed of epithelium of varying density. During the last thirteen months, Glück, of Berlin, had been doing some wonderful work in this direction The subject had engaged his attention even while a student, and his investigations had taught him that he could put ivory into human flesh without any serious consequences. During the last year, this observer had demonstrated that ivory could be substituted for bone, and he had even gone so far as to have an ivory joint made to take the place of an elbow joint which had been excised. After about five months he found that the periosteum had surrounded the ivory, and that there was no trouble so far as sepsis and shock were concerned. Dr. Ricketts said he had had an opportunity within a few weeks of performing a similar experiment. He had been called in consultation by a physician who had under his care a girl, twelve years of age, with such severe necrosis of the left tibia, that an amputation seemed almost unavoidable. Rather than sacrifice the limb, it was determined to implant a piece of ivory, and a hollow cylinder, seven inches long and seven eighths of an inch in diameter, having a cavity whose internal diameter was about one fourth of an inch, was obtained. The ends were rounded to

fit the tibia. The ivory graft was fixed in position, and the wound healed almost entirely by primary union, and without fever. Owing to the condition of the upper fragment, he hardly expected a good result, but the case would be reported more fully at some future time.

DISCUSSION.

Dr. Thomas H. Manley, of New York county, said that the paper was of unusual interest, as it dealt with a variety of lesions, which were frequently met with. His experience with skin grafting had been limited, and had been confined chiefly to the method of Thiersch, which had been so extensively employed and ably advocated by Dr. Charles McBurney. So far as he had made use of this method, he had found it quite satisfactory.

His experience in bone surgery had, however, been very large, comprising upwards of one thousand cases of fracture in subjects of all ages. In cases of fracture with comminution, we must not overlook the destructive effect of the injury upon the vascularity of the parts overlying the bone. He had very often found the artery intact, but the venous circulation seriously obstructed by embolism or phlebitis. Such complications formed one of the great obstacles to successful wiring of fragments, and in his own experience there had frequently been fibrous exudation with consequent binding together of the surrounding tissues, giving rise to anchylosis. The author cited a case of severe injury to the leg of a boy, the entire shaft of the tibia being shelled out of the periosteum. He could not obtain the consent of the mother to do an amputation, and, considering the age of the patient and the good condition of the circulation, he endeavoured to save the limb by immobilisation. A new shell of bone formed along the tibia, and in three years the tibia was completely restored, so that the boy at the present time has a perfect leg. He had had several similar cases. He had been tempted in some cases of fracture, where the fragments could not be kept in position by any apparatus, to make an exploratory incision and wire the bones; but his own experience, together with what he had been able to learn of the results of such operations in the hands of others, had led him to be cautious about resorting to such a measure. In one case, which had come to him with the femur wired in the middle third, there was apparently good bony union, and, in fact, he had been discharged from a hospital with a statement that such was the case. The patient had come to the speaker some time after this on account of pain over the site of the wiring, and because some pieces of bone had been discharged: walking had become difficult, and an exploratory incision showed a

rusty wire and superficial necrosis of the bone. Strangely enough, it was found that there had been no bony union whatever, but a large mass of fibrous cicatricial tissue had glued the parts together so firmly as to simulate osseous union.

While he regarded the paper just read as one which was extremely important on account of the new field which it had opened up, his personal experience, based upon a very large number of fractures in all parts of the body, led him to be skeptical as to the results likely to accrue from such operations; for he had found that bone was extremely intolerant of direct surgical interference.

Dr. Ricketts, in closing the discussion, said that he fully realised the dangers attendant upon these bone operations, but wiring for ununited fracture had been frequently successful, and he saw no reason why a similar operation should not meet with equally good success when done primarily. Glück had reasoned similarly, that if a bullet could remain for a long time in human flesh without causing any serious disturbance, why could not this tolerance of a foreign body be utilised? Such reasoning seemed to him very plausible. The trouble in the case of wiring narrated by Dr. Manley probably arose from the fact that the wire employed was not silver. There was a kind of wire on the market which had been much used by surgeons, and yet it was totally unfit for this purpose. Silver and gold were the only materials that were practically available.

THE PSYCHICAL ASPECTS OF INSANITY.

By John Shrady, M. D., of New York County.

October 24, 1890.

Some one has said that in nature there is no such thing as uniformity,—that even two clover leaves are not alike; and how, in speaking of the human race, can a divergence or exception to a condition like this be expected? Each individual, then, has a tendency which forbids a copy or imitation, and by this he is recognised even though he may have been brought under the influence of the identical surroundings of his brother or neighbour. Police officials say that every criminal has his style. Hence, why need a reference be made to the various recognisable scripts of the pupils trained by the same master? These are truisms which are readiest at hand. These are the signatures which to the individual are as the symbols of the mathematician—convenient condensations of long statements.

A further step in the argument may be taken by granting that there can be no standard of capacities or individuals, for what might be the acme in one could not well be in another. Still less can mind itself be measured, for who can pronounce upon a man's best work? The same may be said of moods or impulses—the one being a prolonged, the other only a fitful, evanescent condition. What the world may regard as a masterpiece may not be accepted as such by the author. Milton, for instance, ranked his "Paradise Regained" much higher than his "Paradise Lost," and honestly held to that opinion to the very last. So of others in the various walks of the arts and sciences, even where painstakings are to be taken as the criterion of excellence.

Now for the consideration of the individual. Horace

Greeley is credited with the remark that the only truly honest man was the egotist,—in that he feared not to express his convictions, which were to the effect that he was really the centre of the universe, and that these ideas of a person's importance, though in the main unuttered, were inherent in all. This, however, is to be set down as only a partial truth, inasmuch as many are swayed by the opposite temper of the mind, self-depreciation. For the better understanding of these manifestations it is necessary to concede that man begins as an infant, in whom the ambition of supplying the immediate wants of the animal is paramount. Self wields the sceptre, and if there be an arrest of mental development, this will probably continue until the end.

With an individual thus in constant communion with himself, there is no conception, or at least no adequate one, of the rights of others. "After me, the deluge," is the phrase which exactly characterises the motives that actuate this class of persons, who care neither for the comforts nor for the comments of their neighbours. Here is to be found the germ of future trouble. It matters nothing whether the service is through love or through fear, self is ministered to, and that is the highest expectation; it is the subordination of the will of others in tribute to or in acknowledgment of individual supremacy that constitutes the aim. Society, in spurning these attempted encroachments upon its eminent domain, will not yield a jot of its rights, but in various ways compels a surrender.

Let these habits of thought regarding individual importance prevail indefinitely, or become a demeanor of the mind, unmixed with other motives and entirely independent of them, and you have the beginnings of the invitation to insanity. Verily, can this be claimed without a challenge? As a more accurate statement, should it not be said that these may be the manifestations of the first departure from sanity? To these succeed delusions which keep self still dominant and exacting. These symptoms, although not pronounced at the start, are capable of unlimited development. They

require, however, to be indisputably chronic before they are generally accepted, for, as a rule, the world does not come (in these cases) to a hasty decision. If at all, the error is on the side of explanation, and invariably the judges are loath to accede to a conviction without facts.

But these suspects now under discussion require watching, and the prognosis is at all times beset with doubts. The retrospect, as usual, is a great expounder, and for this very reason observers delude themselves into the notion that it was prescience that begot the opinion and legitimatised the reason. Therefore, in view of these difficulties, when called upon in a case which in legal phrase is known as "de lunatico inquirendo," the process of examination should be subjective: the individual, as such, should never be permitted to escape mental scrutiny. He should be treated as one whose pivotal point is self-love: this is a means of gaining his confidence, so that his hallucinations may be brought to the surface. His fancies are to be humoured, his lines of thought encouraged, and his vanity flattered, in order that, elated with having gained a proselyte, he may rise to the stature of a propagandist. Not that it is necessary to descend to the arts of the detective, but that the process of unbosoming may be as complete as possible, for be it remembered that only by words is conviction to come. The suspect, however, has a deal of method in his madness: he wears a panoply of shrewdness, and is marvellously alert; he may take refuge in reticence or in paradox: and thus interview after interview may be brought to naught. Very often the examiner himself is cross-examined, and makes at best a very sorry witness.

Now, in the present consideration of the subject, all somatic problems are, of course, eliminated as tending towards confusion: the dealing is with the outline, not with the picture—with facts, such as are to be garnered for the use of the judge: he is to possess the wherefore. Furthermore, one point is to be kept steadily in mind, that as the functions are to the body, so are the motives to the mind. Perhaps the

exception, that the emotions are more complex in their workings and less direct in their offices, may be allowed. Again: They may be more difficult of analysis, inasmuch as the focus is at the wrong end, the divergent rays presenting themselves only as a glare to the bewildered vision. The emotions, too, are capable of an infinite development and of a concentration challenging conception. A certain passion may tyrannise over all the rest, and in its loyalty to self be perfectly consistent in its reign. To detect this element of discord often taxes the craft of the examiner to the utmost.

As civilisation, according to a writer on the causes of lunacy, contributes to the exaltation of the individual responsibility, so, also, does it impose an individual wreckage. The friction is the result of the complicated machinery. There are more comforts, but there is greater strife. In savage life there is more communism, and the government being practically paternal, the responsibilities are reduced to a minimum, so that the rights of the few yield to the expediencies of the many. The brief hour fumings become merged into the melancholy and mania of the individual victim. The person becomes the centre for all kinds of delusions, running the gamut from self-exaltation to self-depreciation. As has been before inferred, investigations are, therefore, to run along these lines.

It cannot but be conceded that it is difficult to follow a principle without the idea of a personality: hence the borrowing of analogies from the external and the palpable. Treated as entities, passions in conflict lie at the root of the ancient mythologies, and thus the vagaries of the lunatic were clothed with personified attributes. The developmental theory is to be followed through its ramifications. There is to be a pitting of motives, one against the other; the degrees of passions are to be followed as the acts of a tyrant. The stages of admiration are to be traced clean through up to the zenith of adoration, self-depreciation onward to suicide, rage to murder, politics to supreme control, love to complete ownership, and ambition to omnipotence.

If reason and a respect for the rights of others assert themselves, even to a degree, the disillusion comes, and despair becomes an inseparable spectre. There is a deal of truth in the swing of the pendulum, so often used as a figure of speech. The gentle Ophelia sings ribald songs, which a modern audience will not tolerate even though linked to an exquisite melody. Hawthorne effectively uses it in his "Scarlet Letter," when he makes the guilty clergyman yearn to hiss oaths into a sailor's ear. The culprit carries to the verge of the gallows the burning wish to "die game." Since he has failed in the matter of reputation, he is content to pass its counterfeit of notoriety. The officer in disgrace falls upon his own sword, even as the hero accepts martyrdom, without a murmur. But these are samples only of a degree: carry them into insane or criminal life, and how deplorable the consequences! The murderer reasons that the penalty for the added crime of suicide can be no greater, and the charity of the moralist suggests that only his premises were wrong and his logic at sea.

The majority of mankind, in their disinclination to think, content to be led merely by vagaries, soon lose their power of will, and are quite willing to be driven by every wind of doctrine. Let them be impressed with the idea that it is impossible for them to err, and they soon drift into the delusions of grandeur. Will has then no control; consequences are disregarded, and thus a mission, subconsciously created, waits for a denouement. Self-complacency may be classed as a leading mental feature of the insane; and, when the loss of self-regulation is added, they may be regarded as utterly hopeless cases. Henceforth, their lot being self-accepted, no amount of rational appeal can be expected to be effectual. As somatic causes produce delirium, coma, and paralysis, they have not been considered in the discussion: so, also, the forms of brain deterioration. The dealing has been with the symptoms, not with the pathology.

In treatment, the principles of Dr. Chalmers's phrase, "the expulsive power of a new affection," should be followed out;

in other words, one mood should crowd out another and a more dangerous one. This was the father of the idea of substitution, based upon the fact that recreation came from the alternating rest of opposing muscles. Concentration upon any given subject of contemplation is to be avoided, diversion being the rule. Nothing can be expected from medication in its restricted sense, because hygiene and variety of employment or amusements constitute by far the best course. These are the principles which govern the management of the insane in the asylums of civilised life, and many are the devices to turn the currents of thought from channels that are grooved and worn.

THE USE AND THE NEGLECT OF BLOOD-LETTING.

By Homer O. Jewett, M. D., of Cortland County.

October 24, 1890.

Four hundred years ago, the barber surgeon of England, equipped with the cupping glasses, the lancet, and the leech, was an essential adjunct to the medical profession. Two centuries later, the dignity and the responsibilities of the barber's vocation were somewhat abated by remitting his surgical duties, while his relation to the profession was still maintained by constituting him a member of the hospital corps. A statute passed in 1627, regulating the management of Heriot's hospital, referring to the list of officers in that charity, reads thus:

> One chirurgeon barber who shall cut and poll the hair of all the scholars of the hospital, and also look to the cure of all those within the hospital who anyway shall stand in need of his art.

The striped pole projecting from the entrance of the "Barber Surgeon's Hall," in Monkwell street, London, symbolised the lather, the blood, and the blue ribbon which encircled the arm in the operation of phlebotomy. We have the emblem with us to-day, but the barber is limited to his strictly tonsorial function. If he scarifies or draws blood, it is not recognised as belonging to the legitimate duties of his trade, but as inexcusable awkwardness on his part.

The physician of the present is about as guiltless of blood as the barber, though he is sometimes charged with bleeding his patrons in a metaphorical sense, and in a far more sensitive locality than the arm or the jugular vein.

It is not my purpose to discuss, within the limits of this paper, the philosophy or the modus operandi of blood-letting,

but simply to illustrate, or, rather, to enunciate, the fact that while it may have been practised to excess, we are committing a far more grievous error by our wholesale abandonment of so valuable a therapeutic agent as venesection.

The extent to which the general antiphlogistic treatment of disease was carried, up to the early part of the present century, and the subsequent reaction, which has finally culminated in an opposite extreme, are matters of history with which you are all familiar.

Within the last fifty years great advancement has been made in all departments of human knowledge. But all change is not progression, neither is all error of the past.

This radical change in the practice of medicine has not been in accordance with any change in the constitution of man, or of the type of diseases, nor wholly in response to the dictates of science, but rather in obedience to that tendency on the part of mankind to swing from one extreme to another.

Those vain pedants, who deride the past and vaunt of the present as if we had but just emerged from the shadow of the dark ages, should remember that far back in the past was conceived that science which is born to-day.

Those who talk of the "indiscriminate blood-letting," the "outrageous abuses," and the "spoliation practice" of the eighteenth century, are impugning the learning and sagacity of generations which have furnished some of the most brilliant and profound intellects that have ever adorned our, or any other, profession. The world has produced few such men as Sir Astley Cooper, John Hunter, and John Bell. The present generation has produced few who would have ranked as their peers. They were the professional educators of their time, and with their co-labourers they built the foundations of our science. It is true they taught and pursued what we call a heroic practice; but it is unjust to their memory—an impeachment of their wisdom and discretion—to assert that they practised indiscriminately. If we consult the writings of the most distinguished authors of that period, we shall find them imbued with the spirit of the age, yet abounding

in sound reasoning and wise instructions for the observance of indications and contra-indications for the use of all active remedies.

Nearly all of the best established principles of practice were first developed from clues which nature gave us. The relief following a profuse perspiration and a spontaneous diarrhoea first suggested a resort to diaphoretics and intestinal evacuants. The abatement of internal embarrassment upon the appearance of an eruption in the exanthemata taught the use of counter-irritants. So, also, the relief afforded by an attack of epistaxis, or other accidental or habitual haemorrhage, first opened our eyes to the importance and utility of venesection.

Thus nature kindly initiated the healing art. Then chance and empiricism added something, and science contributed her suggestions. By studying nature, and by adopting her own methods of cure, we are much less likely to err than if guided by theories evolved from experiments in the laboratory. The earlier practitioners observed nature, and drew their conclusions from and based their practice upon her teachings. But with the advance of time, which changes all things but the Deity and truth, new sources and causes and phases of disease have been disclosed, new remedies have been discovered, and new methods of employing them adopted.

With the advent of the new, much that was old, and some that was valuable, has been discarded: in winnowing out the chaff, the wheat has gone over also. Instead of "proving all things, and holding fast that which is good," well established practical principles, abundantly confirmed by long experience, have been displaced by unsettled and conflicting theories. Once started, the ball has kept rolling, and the profession has floated along with the tide of ever changing fashion, carrying with it the sympathies of the general public, which has interested itself just enough to imbibe prejudices against old means and methods of practice.

To aid in carrying on the movement, some writers upon medicine—men justly distinguished as pathologists and diag-

nosticians—like thermometers adapted to the temperature of the surrounding atmosphere—have adopted and elaborated the most popular theories of the day. In dealing with the practical, some of these writers have abounded in solemn warnings against antiphlogistic measures in general, and blood-letting in particular, at the same time giving specific directions for the administration of stimulants, sedatives, and antipyretics in the treatment of acute diseases,—the object being mainly to control symptoms secondary to and dependent upon functional derangement and organic changes, while watching and waiting for a crisis, and convalescence or dissolution, as the case may be. But, unlike some French pathologists, our friends of the stimulating school cannot be charged with omitting medication lest it may modify post-mortem appearances, since the prudence which eschews the dangerous lancet does not scruple at a two-scruple dose of quinine as a febrifuge, or nitro-glycerine in one-half grain and liquor-arsenicalis in twenty-drop doses, for certain chronic affections characterised by progressive failure of the vital powers.

Such are some of the teachings which are to prepare young men for the responsibilities of the most responsible of professions. Thus "the twig is bent," and thus we may expect the tree to incline. Of course, on account of difference of mental constitution (the operation of *centrestances* as well as circumstances), differences of opinion must exist upon this as upon other subjects.

While the junior portion of the profession discard, as a rule, direct depletion, and a majority of them do not use the lancet under any circumstances whatever, those of us who began our medical experience forty or fifty years ago have retained our preference for venesection in many acute inflammatory affections. Yet we, even, swayed by the popular current, have by no means "builded as well as we knew."

Sir James Paget, and others of equal celebrity, bear testimony to the harmlessness of venesection upon the healthy economy. In a series of experiments for the purpose of

determining the effects of loss of blood up to the point of syncope, upon comparatively healthy adults, Sir James says,— "I think I can say surely that not one of these persons suffered any harm from the operation." If, then, the abstraction of blood, instead of being the dangerous practice represented by those who talk about its depressing effects without ever having tested it, is comparatively harmless in health, how essential may it become when an internal vital organ is struggling under the embarrassment of extreme engorgement. The once common practice of occasionally bleeding robust adults, suffering only from general plethora, always afforded marked relief, and no doubt often averted an attack of cerebral congestion or apoplexy.

Fothergill and Haberdeen assert that sudden deaths have greatly increased in England since bleeding in the spring and autumn has gone out of fashion. And "I am convinced," says Dr. Tilt, "that the sufferings of many women are aggravated from bleeding never being resorted to, especially about the time of the menopause, when nature seems to demand a substitute for the habitual flux which has subsided."

Some young girls, of full habit, who suffer from menstrual irregularities, dysmenorrhoea, or temporary suspension accompanied with a flushed face, headache, and throbbing pulse, and resulting from exposure to cold or dampness, are often vastly relieved and the flow promptly restored by a moderate bleeding, assisted by a hot pediluvium or hip-bath. An opiate combined with sedatives and antispasmodics may afford relief, but bleeding will leave the patient much better during the interval and at the approach of the next period. Women under these circumstances will bear immense losses of blood without injury, and the danger of establishing a habit necessitating the frequent abstraction of blood has been greatly overrated.

Many cases of local congestion, or incipient inflammation, in both sexes, from injuries or from colds, are similarly relieved by venesection, though other means will accomplish the purpose less promptly.

Case. H. S., a robust young man, age 21, sat upon a pile of damp lumber, while visiting with a friend in the evening. During the night he had a severe chill, followed by pain, fever, and retention of urine. When I saw him, his face was flushed, the temporal arteries full and throbbing. He had not urinated in thirty-six hours, and the bladder was much distended. A physician had given him diuretics, and made persistent but fruitless efforts to catheterise him. I at once bled him to syncope, and then introduced the catheter without the least resistance, and drew off a large quantity of urine. He recovered without further attention.

Before the introduction of anaesthetics, some obstinate and long-standing dislocations were readily reduced after venesection and a nauseating dose of tartrate of antimony.

The practice of bleeding in the latter months of pregnancy, once common but now nearly obsolete, always relieved the distressing headache and vertigo so frequently incident to that condition, and, in all probability, many times prevented an attack of convulsions during labour.

Case. Mrs. H., age about 30, a strong, robust woman, whom I attended twice in labour, began about the seventh month of gestation to complain of severe headache, giddiness, blindness, oedema of the extremities, etc. The first time, in order to avoid too many repetitions of the operation, I deferred it till the symptoms became so urgent that I dared wait no longer, then bled her about twenty ounces. The relief was so prompt that she upbraided me, very justly, I think, for having deferred it so long. In her second pregnancy, I bled her twice, and again during labour which was lingering. She got up well from both confinements.

After this she moved out of my jurisdiction, became pregnant again, and was attended by a homeopath who refused to bleed. As a consequence, she suffered terribly, and at full term gave birth to a well developed, still-born child, and died in convulsions a few hours after delivery. I have not the least doubt that one or two good venesections would have saved the lives of both mother and child.

In tedious, lingering labours, attended with slow dilation, while I can bear testimony to the salutary effects of small, oft repeated doses of tart. antimony (as recommended by my friend Dr. Green and others) for the purpose of relaxing the rigid os, I must also affirm that a good, thorough bleeding will accomplish the same end more speedily and with far less

discomfort to the patient, besides regulating and concentrating the action of the womb upon the work it has to perform.

As a rule, we do not deprecate a pretty free discharge of blood in labour during or immediately after the delivery of the secundines. A flow, which might appall the young doctor with his first case, is borne without detriment, our patient getting up even better than those who flow scantily.

In puerperal convulsions, those of a hysterical form occur in a class of women who do not require bleeding, or who usually recover under almost any treatment; but true eclampsia, of the epileptic or apoplectic variety, requires the most prompt and vigourous action. We cannot always deliver hastily, or, that accomplished, the convulsions do not, as a rule, subside at once. A few moments, or a single spasm, may produce irreparable injury to the nerve centres; but by the abstraction of blood we can moderate the action of the heart, reduce the force of the circulation, and lessen the amount of blood forced into the brain, from which we have so much to fear.

Says Dr. Meigs,—

> If there be a case of disease in which a bold and daring employment of the lancet is imperatively demanded, it is a case of puerperal convulsions. From thirty to sixty ounces should be taken at a single bleeding, unless faintness, which is a harbinger of success, occurs. Then, if the mischief be not so great as to be fatal at the very onset, we have a chance of saving our patient's life.

So taught the venerable Dr. Meigs; and the declaration is as true to-day as when it fell from the lips of that able practitioner and teacher of obstetrical science.

Comparatively recent discoveries have furnished us with some very valuable auxiliary means of combating this fearful malady. But what shall we do, when in the course of or directly after delivery, the face of our patient becomes suddenly suffused, the veins turgid, the temporal arteries throbbing violently, the eyes jerking, the countenance distorted, the inspiration hissing, bloody froth issuing from between

the closed teeth, our patient perhaps in contortions like a fish just released from the hook? Shall we stop for a parley? Shall we sit down, and wait for the slow and uncertain operation of veratrum, digitalis, and the bromides? Shall we trust the treacherous truce purchased with chloroform, chloral, or hypodermic of morphine, when we know that extravasation of blood, or effusion into the ventricles of the brain, if not already present, may soon place our patient beyond the hope of cure? Or shall we attack the disease at once, with the remedy which we hold, at a moment's warning, between our thumb and fingers, and which is not only palliative, but actually curative? Of course we premise with a careful estimation of the vitality and tolerance of the patient. The pulse at first is not always a safe guide: if it be full, hard, and bounding we do not hesitate to bleed, but if it be small, irregular, and depressed, the flow of blood may increase its force and volume. So by watching the effect of the remedy, we may proceed with safety. We know that we can bleed, repeating the operation if necessary, until the spasms will cease: then a mercurial cathartic, followed by salines when indicated, will afford the best chance for recovery.

I well remember my first case of puerperal convulsions,—away in the country, six miles from any place, and the roads nearly impassable. I had all the theory of the disease, as detailed in the lecture-room and in text-books, but it fell far short of the reality which came like a thunder-clap upon me. I knew how to bleed, and I could think of nothing else within my range of therapeutics. I did bleed, *ad deliquium*, and the nurse thought I had killed the woman, but she gradually rallied, to my relief, and recovered, and still lives to tell the story to her granddaughters who are mothers now.

I have the notes of twenty-one cases of puerperal convulsions,—a part of them in my own practice, some in consultation. Eleven were primiparae, the others having borne children before. Twelve were bled; eight were bled once each, three were bled twice each, and one was bled the third time. Nearly all got mercurial cathartics after bleeding. Eleven of

the twelve who were bled recovered, and one was maniacal and died in about twelve days. Of the remaining nine,—four were decidedly hysterical, and recovered without bleeding; three were so feeble and bloodless that it was thought not safe to bleed them, one recovered and two died—one on the third day, and one on the seventh day from exhaustion. In two cases, bleeding was omitted in deference to the opinion of counsel. One of them never rallied from the coma, and died on the fourth day; and the other, after a tedious convalescence, regained her health So that of the twelve bled, one died: of the nine not bled, including the hysterical cases, three died.

Forty years ago bleeding was the accepted remedy for pleurisy, and the cure was generally rapid and complete. Very few cases lapsed into a chronic form, or resulted in exudation or adhesions which were permanent. There is no doubt that acute inflammation of serous membranes like the pleura or peritoneum, though always dangerous, may yield to opiates, antispasmodics, and counter-irritation, or even to the conservative efforts of nature. Nevertheless, I am convinced that if we resorted to the lancet oftener, our cases would be less frequently menaced with troublesome and dangerous complications. The transient pleurisies which occur in phthisis do not, of course, require either general or local depletion.

When neuralgic affections were not as well understood as they are supposed to be at the present time, many attacks of intercostal myalgia, or even pseudo-peritonitis, may have received more vigourous treatment than they required. The argument was,—"if an error, it was an error upon the safe side," since a moderate bleeding would do no harm, while an obscure or ill pronounced inflammation, if neglected, might terminate in some fatal lesion.

But those mocking neuroses are now so well understood as to leave little danger of mistaking a simple pleurodynia for acute pleuritis, or *vice versa*.

Pneumonia of a typhoid type, as a complication in low

fevers or as it occurs in debilitated subjects, in old persons and young children, in view of the almost certain prostration, demands that we keep an anchor to the windward by a careful husbanding of all the resources of the system, and a supporting plan of treatment from the beginning.

Acute, sthenic pneumonia, or pleuro-pneumonia in robust subjects, whether a specific fever or local affection, whether of septic origin, or self-limited, or neither, invading, as it usually does, only a portion of the pulmonary structure, may run its course, and terminate in convalescence by the unaided efforts of nature. But experience has taught us that it is safer to assist nature, so far as we can, by well tried, rational means.

Whatever may be the primary cause of pneumonia, it is a disease attended with circulatory disturbance, and is, in its earliest stage, proverbially tolerant of, if not amenable to, direct depletion. When called early, we need not hesitate to bleed freely, as by so doing, though we may not cut short the malady at once, we have a fair prospect of modifying and abridging its course, and simplifying its after treatment. I have little to say about reducing the number of red corpuscles, suggested by some writers. We do not take those corpuscles by selection, but only in their due proportion to the amount drawn. But by removing a portion of the circulating fluid, we lessen the labour to be performed by the healthy portion of lung, diminish the vascular distention, increase the *vis a fronte*, and relieve the overcharged capillaries, thus hastening normal resolution and unloading the congested and rapidly solidifying lung tissue. By the sudden abstraction of blood (and the more sudden the better) we produce an impression upon the vaso-motor nerves and the nerve centres, rousing their functions to our aid in the restoration of health.

I am of those who believe that pneumonia in its incipient stage can be abated, and at later periods may be limited in its area, by treatment; for so long as the disease is unchecked by artificial means it may not advance to a happy crisis, but

may go on from day to day invading new territory, so that we may have (as is observed by Prof. George B. Wood) the disease "progressing in its several stages at the same time and in the same individual." It is this which we aim to prevent, and I know of no one means which will do more towards accomplishing the end than bleeding.

I have spoken of the necessity of supporting treatment, as a rule, in old age; but the idea that none but the young, middle aged, and robust will bear venesection, is abundantly disproved by experience. Prof. Paine was attacked with pneumonia late in life—a spare, feeble man, nigh on to 80 years old. His physician feared to deplete him on account of his extreme age and debility, but the old man was imperative, and despite the remonstrance of his medical attendants, he declared, with his usual firmness, that he "*would be* bled, or die." He *was* bled, and the operation was repeated the next day. He recovered so as to enjoy several years of comfort and usefulness thereafter.

Whether pneumonia is better treated now than it was fifty years ago, is a question yet to be answered. Statistics are proverbially unreliable: so many factors are involved that figures prove nothing. Certain it is that it was not the dreaded disease half a century ago that it is to-day.

Among the rural population with healthy surroundings, physicians report ordinary success. Of course a majority of their cases recover, and the unfortunate ones do not usually succumb before the end of the second week.

But the alarming and early fatality of pneumonia in our large towns and cities among wholesome livers in the higher walks of life—the sudden and unexpected collapse of vigourous constitutions after a few hours of illness from pneumonia, circumscribed, involving perhaps only a portion of one lung, with no other obvious organic lesion,—is, to say the least, but a sad commentary upon the efficiency of our art; nor does it bespeak "more exact clinical observation, more correct appreciation of pathology," or a vastly improved system of therapeusis. Our modern therapeutics may not be

responsible for these results, which might follow any form of treatment.

But I believe with Dr. Atlee, that "if we depended more upon the early use of the lancet in these inflammations, our practice would be more successful than it now is." As yet there is no agent which will supply the place of the lancet in all cases to which it is adapted.

Veratrum has not sustained its reputation as a substitute for venesection, nor can it justly claim superiority as a heart-sedative, or general antiphlogistic, over the old-fashioned tartar-emetic properly administered. But, admitting all that is claimed for it as a powerful remedy, veratrum must sometimes be intrusted to unskilled nurses, with conditional directions for its administration, in which case it is far more uncertain and unsafe than the lancet in the hand of the surgeon. This is by no means a trifling consideration in the country, where it is impossible for the physician to make very frequent visits. A practitioner of large experience informed me that under such circumstances he had more than once prescribed veratrum where he had afterwards cause to regret it—a thing which neither of us could say of bleeding.

Some of the new synthetical preparations (antipyretics) are used by many, and are highly extolled by some on account of their power over the circulation and the temperature. But, as every medal has its reverse side, antipyrine and acetanilid, while they may promptly control the temperature, are liable to interfere with certain normal molecular changes, and with the processes of assimilation and elimination; and even in moderate doses they sometimes induce a condition of general capillary stasis, turning the patient not quite as blue, as Dr. Holmes says, "as the double tattooed king of the Cannibal Islands," but blue enough to suggest serious mischief if the dosing be continued.

No such effect has been or can be produced by blood-letting, which will tend to unload instead of stagnating the venous and capillary systems. The propriety of venesection in cerebral congestion or apoplexy must depend wholly upon

existing indications in individual cases, and I have no recollection when those indications were disregarded by intelligent practitioners. I have had no experience with "bleeding for a name instead of a condition." In the apoplexy of old persons, where there is senile wasting and a paucity of the fluids, with or without atheromatous degeneration of the arteries, no discreet physician will deplete. But in the apoplexy of full habits, where there is a hard pulse, a suffused countenance, coma, paralysis, etc., bleeding is indicated as much as it ever was. We do not expect to cure cerebral degeneration, or to remove an embolus; but how are we to know that an embolus exists? It may be extravasation upon or into the substance of the brain. Then we may moderate the action of the heart, cause it to send a milder current to the head, arrest the process of extravasation, and possibly favour the absorption of that already present. At any rate, many times, after a thorough bleeding, the face pales, the pulse grows softer, the coma and stertor subside, consciousness is restored, and the patient gets a lease of life during which, if it continue long, the paralysis may abate so as to render existence tolerable.

In the stupor resulting from concussion, depletion may be beneficial if not resorted to before reaction is established. After that, it may obviate the tendency to extravasation or to inflammation and effusion.

I have known cases of acute mania, attended with fulness about the head, not merely relieved, but permanently cured, by a few bleedings from the arm or the temporal artery. "Poor Blanche of Devon" was not the only sufferer whose reason has been restored by a flow of blood.

I suppose no one would now propose bleeding for the arrest of haemorrhage from the nose or the lungs, as was once practised with apparent success. More than thirty-five years ago, a lady patient of mine had a fearful attack of haemoptysis: she was relieved by bleeding from the arm, and is yet living.

Very early in my practice I bled to relieve the headache

and general malaise, premonitory of typhoid fever. The pain was mitigated, but the fever continued its course, and my patient did not die, though in subsequent epidemics, after we had learned not to bleed, I lost my proportion of cases.

Dr. Rush and Dr. Physick bled in malignant fever, Dr. Paine bled liberally in cholera, and all reported better success than with any other plan of treatment. These men were the embodiment of truth and earnestness. No man will question the superiority of their accomplishments, their devotion to science, their exactness in observation, or their candour in recording the results of their experience.

It is doubtful if many, even physicians, fully realise the ability of the human system, under some circumstances, to sustain the loss of blood.

Dr. Cartwright bled with success in the malignant fevers of Mississippi, sometimes to the extent of 100 ounces at one bleeding. During the epidemic of 1797, Dr. Dewees bled Dr. Physick to the extent of 176 ounces; Dr. Griffiths bled Mr. Thompson 110; Dr. Stewart bled Mrs. McPhail 106; Dr. Cooper bled Mr. Evans 150; and Dr. Gillespie was himself bled to the extent of 103 ounces.

Dr. Marshall Hall and others have left us similar records.

"Time can never make that fiction which was once a fact," and unless we question the veracity of authorities whom I have quoted, we must accept these as facts deserving of our serious consideration. I have presented them, however, merely as historical facts, not as examples to be followed in practice without a question as to their soundness or their adaptability to other times and other circumstances. A pertinacious adherence to authority, whether that authority be old or new, is not a characteristic of the successful practitioner of medicine. It is natural, and perhaps well, that we differ upon such subjects; and it may be in the interest of science and progress that, in matters not susceptible of mathematical demonstration, we sometimes carry these differences to extremes, since it is often only when extremes are reached that the fallacy of a false theory is illustrated.

Differences of opinion are necessary to stimulate rivalry of thought, and develop that brilliancy which comes of friction between conflicting minds.

In confining myself to the practical features of my subject, as implied by its title, I have preferred to deal with facts rather than with theories, albeit this is an era of theories, some of them championed by voluble tongues and ready pens. I know that I am striving against powerful odds, and that I am not a match for numbers. But I am not bidding for applause, and have sought truth, not honour,—have laboured more for my profession and humanity than for myself.

In common with the rest of you, I have had varied experience with the multitude of popular remedies, sometimes with satisfactory results, sometimes not. And I desire, before closing, to emphasise this fact,—that while I have never once used the lancet when I had afterwards cause to regret it, I have many times regretted having neglected its use. But while I have strongly indicated my partiality for blood-letting under proper circumstances and proper restrictions, I trust it will not be inferred that I repudiate or underrate the many other valuable therapeutic agents which time and the scope of this paper will not allow me to discuss.

Now, as practical men, with little time before us, let us hold fast to all that is sound of the rich harvest of the past, seize upon and embrace all the valuable improvements of the present, looking hopefully forward for better and nobler achievements in the future!

DISCUSSION.

Dr. Darwin Colvin, of Wayne county, fully corroborated the paper of Dr. Jewett. He had had a large experience with eclampsia, both post-partum and otherwise. Those especially interested in his views on this subject would find them fully set forth in the Transactions of this Association in the first volume, and in the volume for 1886. He had been asked only a few days ago for advice regarding a lady who, when pregnant with her first child, had enormous quantities of albumen in the urine, and, at his advice, had been bled thirty ounces. This was near

her confinement, so that, notwithstanding that she was bled again during labour, the convulsions returned; but she was delivered of a healthy child. At the present time she was about eighteen days from her second confinement, and was in precisely the same condition, although a little more aggravated, having spells of blindness and syncope. The same physician bled her one quart, and left word that he would return in about ten days and bleed her another quart. There was the same quantity of albumen in the urine as at her previous confinement, and the speaker mentioned the case particularly because it was unusual to find these cases of eclampsia recurring in this way. His advice to any practitioner who did not know how to bleed was to learn how, and then interest himself in the treatment of puerperal eclampsia.

Speaking of the use of veratrum viride in such cases, he said that one of the worst cases he had ever attended was passing nicely through her labour, when she was suddenly seized with horrible convulsions. She appeared frail, but her pulse, as counted repeatedly by the consultant and himself, was 170 beats per minute. The consultant wished to bleed her, but he (Dr. Colvin) was loath to do this on account of her apparently weak pulse and poor condition, so he administered veratrum viride in rather heroic doses, and succeeded in reducing the pulse twenty-five beats. Notwithstanding this, the patient became cyanotic, biting her tongue, etc., and the old physician again said, "Bleed her." This time Dr. Colvin bled her, and the pulse changed wonderfully, coming down to 118. After this, as the convulsions recurred occasionally, veratrum viride was again given as the pulse increased in frequency, but the convulsions not subsiding very promptly, he again bled her, and the pulse was reduced to 116, and remained there. After twenty-four hours she talked rationally, but had no knowledge of her labour. This case illustrates how deceptive the pulse may be in eclampsia, and how quickly it may be increased in strength and volume by bleeding.

LEPROSY.

By Joseph C. Greene, M. D., of Erie County.

October 24, 1890.

Leprosy is a constitutional disease, specific in its nature, doubtless having its origin in a material substance, the *bacillus leprae*, running a chronic course to a fatal termination in from ten to twenty years. It consists in the development of peculiar changes in the skin and most of the organs of the body, but especially in the connective tissue of the peripheral nerves. The synonyms of leprosy are numerous. It was the ἐλεφαντίασις of the Greek authors. Each one of the numerous races in which it prevails gives it a local name, but they cannot be given here for want of time. Leprosy is prehistoric, doubtless having its origin in Egypt, for the Biblical accounts show that the Israelites suffered from it during their bondage in that country some three or four thousand years ago, and it was doubtless carried by them into Palestine, and from there spread over Syria, where its victims are found in large numbers to-day.

The spread of this disease is world-wide, and the earliest records go to show that it has prevailed in certain parts or countries from time immemorial. As early as the seventh century it was found in Ireland, Italy, France, and Germany. During the crusades its spread was greatly increased, owing to the constant intercourse between Europe and Palestine and the Orient. We find that it reached its height in Europe during the twelfth and thirteenth centuries; but the disease began to diminish in the fifteenth century, and had almost entirely disappeared from Europe during the seventeenth, and, strange as it may appear, no cause can be assigned for its disappearance.

The map before you will give us a correct idea of its

present geographical distribution, and will locate the different countries of the earth where leprosy exists at the present time. You will observe that the leprous countries and districts, as well as islands, are designated by colored areas, showing that it still lingers and can be found to-day in Great Britain, where it was endemic for thirteen centuries,—of which I shall speak more fully farther on,—also in France, Spain, Portugal, Norway, Sweden, Italy, Greece, and South Russia. It prevails in Africa, Asia, and most of the islands of the Indian and Pacific oceans, the Sandwich Islands being the most noted. It is also found to exist extensively in Central and South America, Mexico, and the West Indies. [Map not reproduced—Ed.]

The exact date of the introduction of leprosy into North America is unknown, yet it will be interesting to trace its history in the United States. History tells us that the Spaniards established leper hospitals at several points on the Gulf of Mexico,—one existed as late as 1785 at New Orleans. It apparently died out, and vanished entirely from the gulf states for nearly a century. A case was discovered in Louisiana, in 1866, in an old woman whose father came from the south of France. Since her death, in 1870, several of her immediate descendants have been stricken by the disease.

A Norwegian colony of lepers emigrated to the United States some years ago, and settled in Minnesota. They were recently visited by Prof. Boeck, who found that some eighteen cases still existed, all being native born Norwegians. Not a single person born of leprous parents in Minnesota had been attacked by the disease. The Committee on Statistics of the American Dermatological Association reports the continuance of the disease in the north-western states. Leprosy prevails to a greater or less extent upon the Pacific slope from British Columbia to Mexico. There are supposed to be between one hundred and two hundred lepers in the United States at the present writing.

The first case I ever saw was in the person of a Chinaman, on the cars between Los Angeles and San Francisco, in 1888.

Since then it has been my privilege to see a large number of lepers in many of the different countries of the world. Between fifty and sixty cases have been treated in the Leper hospital in San Francisco since 1871, most of whom have been sent back to China if death did not come to their relief speedily. I am credibly informed that leper patients are often found in the hospitals of our large cities on the seaboard, they being sailors, or persons from countries where the disease is endemic.

I might say, in passing, that leprosy has prevailed in New Brunswick since the early part of the present century. It may be said of it there as in our north-western states, that its spread is very slow. The fact that this disease is established at several points, and that our territory has been penetrated and our large towns and cities occupied by a race so prone to the disease as the Chinese, makes the study of leprosy in this country of special interest to every medical man throughout its entire length and breadth, and especially so since whenever the disease has become firmly established in a country it has been almost impossible to stamp it out.

Look at Egypt, where it doubtless originated some five thousand years ago,—where it has existed, and come down through the ages to the present day. The aetiology of leprosy is not well understood even at the present time. To study it properly, it is necessary to take in its history and its geographical distribution. It is evident that the Israelites, a thousand years prior to our era, considered it a contagious and infectious disease, and it has been regarded by all nations, from that time to the present, with abhorrence.

Authors have differed in the past, as in the present, as to its causation. The late Erasmus Wilson, of London, believed the active cause to be miasma. Others have assumed that bad and insufficient food and a fish diet were potent factors in modifying, if not causing, the disease: but it is a fact worthy of note that its distribution is wide-spread, reaching from the Arctic to the Antarctic ocean, belting the earth from east to west. It is found in high altitudes as well as at

sea level. However, these diversified conditions have little or no effect upon the course of the disease when once fully established, and nothing whatever to do with its causation.

Moreover, the theory of heredity is advanced by some, of whom Drs. Danilsson and Christe, in Norway, are most prominent. Inmates of the Leper hospital at Bergen, which is under Dr. Christe's care, are allowed to vend their wares on the streets and in the market-places, and yet we are informed that leprosy in that country is dying out,—from over two thousand twenty years ago, to less than seven hundred at the present time.

In countries where it is spreading rapidly it is believed to be both contagious and hereditary. I will only refer to two countries,—India and the Sandwich Islands. Leprosy is found mostly among the natives of the islands, and is on the increase, notwithstanding the enforcement of strenuous rules and regulations in the way of isolation and segregation, and finally the removal of patients to an asylum on the island of Molokai, from which there is no escape. In 1881 the board of health of the islands estimated the number of natives or aborigines afflicted with leprosy to be 4,500, or ten per cent. of the native population, which, according to a recent census, was only 45,000. The rapid spread of the disease since 1860, and the large number affected, must be accounted for on other grounds than heredity alone. All the resident physicians believe that it is transmitted from person to person by inoculation, which seems to be the only possible explanation.

We have a striking instance of the contagious nature of leprosy in the case of Father Damien, the young Belgian priest, who went to the island of Molokai as spiritual adviser at the age of twenty-three, being then in perfect health, and died at forty, impressing the religious world with his devotion to the Church, and with the self-sacrificing spirit manifested in the endeavour to relieve human suffering.

It was at a meeting in London, last year, for the purpose of promoting a memorial of Father Damien, that the Prince of Wales stated that a leper was handling fresh meat in one

of the markets of London. This statement shook the great city from centre to circumference, as I know from actual observation, for I was there at the time.

At a meeting of the Epidemiological Society of London, for the purpose of discussing the question of leprosy two specimens of lepers were presented, and, as I was present, I had the opportunity to see them. One, a man aged sixty, the leper referred to by the Prince of Wales; the other, a boy aged seventeen. The man had not been out of England for forty years, and was only attacked five years ago; but when a boy he sailed to some of the Mediterranean ports, where this disease was endemic. It would appear that the specific virus in this instance was dormant for thirty-five years at least. The boy was born in a leprous country, and came to England when eight years old, being attacked several years later.

In a paper read at this meeting by Surgeon Major Pringle, M. D., of the Bengal army, on the increase of leprosy in India, it was stated that there were two hundred and fifty thousand lepers in that country, and that the probable increase in the number of lepers was nine to ten thousand annually. A preservation of leper-life had been increasing their number since the great order of the British Colonial government, "Burn not widows, kill not infant girls, bury not [alive] lepers," was promulgated; and also an increase is undoubtedly due to the entire neglect of all precautionary measures against its spread in the way of isolation and segregation of those afflicted. If filth, poverty, and the want of a nourishing diet are important factors in the spread of leprosy in India, we ought not to be surprised at the annual increase of ten thousand, or even more, for it is estimated that fifty millions of people in India subsist principally upon parched grain, and, for want of proper shelter, sleep in the open air.

There are a number of leper hospitals in different parts of the country, but they are merely charitable institutions—the lepers being free to go in the dry season, and to return, if they so desire, during the wet season or winter months. I

wish to say that during the last few months public sentiment in India and at home (England), has been very much awakened on the subject of leprosy, and measures are being taken along the line of isolation and segregation to stop the spread of the disease; for the native physicians, as well as eminent medical men of Great Britain, believe it to be contagious.

From the time (1873) Dr. A. Hensen, of Norway, who is the real discoverer of the *bacillus leprae*. gave the results of his investigations, a complete change has been wrought in the minds of the medical faculty of the civilised world as to the essential cause of leprosy. His assertions have been verified by observers in most leprous countries.

Ziemssen is authority for saying that the *bacillus leprae* is a specific parasite hitherto found in the human body only. It is rod shaped, the length being about three fourths of the diameter of a red blood corpuscle. Their breadth is one fourth or less of their length. We have here a remarkable resemblance to the bacillus tuberculosis. Culture experiments and inoculations have not, however, given satisfactory evidence that the bacillus is the causative agent.

Symptomatology.—There are two well marked forms of leprosy, neither of which is always sharply defined, for between the "tubercular" and the "anaesthetic" is a whole series of mixed forms, which are characterised by external manifestations, easily recognised in the advanced stage, but not in the prodromal.

Tubercular Leprosy.—The most common early symptom of this variety are the hyperaemic blotches, covering the face, chest, and hands to a greater or less extent. These spots gradually develop into solid tubercles, but not until the disease has existed for some time (months or even years). These tubercles are hard to the touch, varying from one half to one inch, and even more, in diameter. Their development depends upon the frequency and force of the leprous fever. During the febrile process they develop rapidly, but remain stationary, or nearly so, when it abates. Hence the severity

and termination of leprosy depend largely upon the frequency of the exacerbations of the leprous fever.

When the tubercles mature, they soften and discharge for a time, leaving an ulcer, which, in the majority of cases, heals. The most common seat of the disease is the upper part of the face, including the eyebrows, which are often denuded of hair, giving a fierce expression to the whole face, to which the term "leonine" is given by some authors. The mucous membrane of the fauces, nasal cavities, and larynx is affected similarly to the skin, causing ulceration, and consequently, in severe cases, aphonia. As the disease advances, changes in the internal organs manifest themselves by emaciation and great loss of strength, and death may ensue at any time. But if the case is of the mixed variety, and the anaesthetic type predominates, then we may have separation at the joints of the extremities, with loss of fingers and toes. The course of the tubercular form, in most countries, is about ten years, but in the Sandwich Islands, where the virus appears to be more active, death ensues in about three to five years.

Anaesthetic Leprosy.—The prodromal stage of this variety is similar to that of the tubercular just described, and will not require in this place a special enumeration of its symptoms. In many cases a feeling of numbness and a sensation of heat or cold are felt in the area of the peripheral distribution of the affected nerve, and there may be severe pain, but the loss of sensation in the skin covering the extremities involved is notable, and the degree of anaesthesia may be so complete that the ulcerative process will go on until the fingers and toes, and even the hands and feet, drop off, without the patient suffering much, if any, pain. Strange as it may seem, the stumps may and often do heal perfectly. The course of this variety is about twenty years. You are often confronted by these frightful deformities of the tubercular and the mutilations of the anaesthetic variety, all of which will impress the imagination and awaken the greatest sympathy for those unfortunate creatures which obstruct your

path at every turn, presenting their fingerless hands and their many deformities, asking in God's name for help.

On my travels through many leprous countries, I availed myself of the opportunity to visit a few of the leper hospitals,—one on the island of Ceylon, and another in the city of Damascus called the "Na'aman Leper Hospital," said to stand on the identical spot where Naaman the leper's house stood some three thousand years ago. There were said to be thirty patients in the latter at the time of my visit. I was unable to learn much of their medical treatment. Another was near Trondhjem, on the west coast of Norway, where there were between eighty and ninety patients, exhibiting all the varieties of leprosy in its different stages of development.

Treatment.—The best information bearing on the treatment would indicate that the therapeutic measures are fragmentary, and in many cases contradictory. Leprosy has claimed the attention of physicians for centuries, yet no remedy has been found to exert a specific action upon it. Therefore I quote Ziemssen,—"Leprosy is an absolutely incurable disease."

Now that the great uncertainty which exists throughout the civilised world on the question of leprosy, as to its causation and treatment, is to be investigated by the Leprosy Investigating Committee of England under the auspices of the Prince of Wales, we have reason to hope that a solution of the questions involved may be reached.

THE TEST OF DUGAS IN DISLOCATIONS OF THE SHOULDER.

By Frederick W. Putnam, M. D., of Broome County.

(Read by title October 24, 1890.)

The test of Dugas, in dislocations of the shoulder, is the possibility or impossibility of placing the hand of the affected side upon the sound shoulder, at the same time bringing the elbow close to the chest wall.

This test was first brought to the notice of the profession publicly in a communication to the March number for 1856 of the *Southern Medical and Surgical Journal*, by Prof. L. A. Dugas, of Augusta, Ga.

At the meeting of the American Medical Association held at Nashville, Tenn., in May, 1857, Prof. Dugas presented his views to that body in a paper upon the subject. This paper may be found in Vol. X of the *Transactions of the American Medical Association*, page 175, and bears date at Augusta, Ga., April 25, 1857.

By common consent it has justly been named in honour of its author, L. A. Dugas, M. D., professor of surgery in the Medical college of Georgia, and is known as Dugas's test. Prof. Dugas states that he had instructed his classes at the college in the use of this test for a number of years.

From the reading of his paper it must be admitted that Prof. Dugas applied this test to *all* dislocations of the shoulder, although he does not speak in particular of the subcoracoid variety. So far as I know, the test does obtain in all varieties of dislocation of the shoulder except the subcoracoid variety, and probably in a majority of those cases.

Bryant, in the third American edition of his *Surgery*,

quotes freely from the article referred to, and certainly applies the test to all shoulder dislocations.

Hamilton, in the sixth American edition of his *Fractures and Dislocations*, in speaking of the subcoracoid and subclavicular varieties, says,—"To these we may add the common sign of all dislocations of the humerus mentioned by Dugas, viz., the impossibility of placing the hand upon the opposite shoulder while, at the same moment, the elbow is made to touch the front of the chest." This is certainly a plain, unconditional statement.

Wyeth, in his late work on *Surgery*, page 322, says,—"As in all the shoulder dislocations, the arm is so held that if the hand of the injured side be placed upon the opposite shoulder, the elbow cannot be made to drop down upon the wall of the thorax."

Ashhurst, in the *International Encyclopaedia of Surgery*, says,—"This is a test of decided value, but, for it to be well applied, it is often necessary to disarm the patient's voluntary muscular resistance by the use of an anaesthetic."

Prof. Packard, in the American edition of *Holmes's Surgery*, vol. 1, page 870, refers to it as applying to all shoulder dislocations.

Agnew applies the rule in the same way.

Gross, in the third edition of his *Surgery*, vol. 2, page 74, only refers to the test in connection with the sub-glenoid variety.

These few references would seem sufficient to establish the fact that the test has been pretty generally accepted by the profession as an infallible one in all dislocations of the shoulder.

I have recently met with a case which demonstrates that the test is not an infallible one. It was a subcoracoid dislocation, and was produced by a fall. The patient was standing on a chair and reaching up with both hands, when she suddenly fell, striking upon the side, elbow, arm, and shoulder. I could easily place the hand of the affected side upon the opposite shoulder, and at the same time bring the elbow

close to the chest wall. This dislocation was not positively diagnosed for a number of days, owing principally to the positive statements in regard to this test in our text-books. Drs. Chittenden and Burr, of Binghamton, saw the case with me, and can verify the above facts.

The explanation why the test did not obtain in this particular case is to be found, I believe, in the fact that the patient was a thin, spare subject, and that there was so much laceration of the ligaments about the joint that the arm was allowed to drop partially out of the socket by its own weight. As soon as the swelling had somewhat subsided the dislocation was plain, and under chloroform was easily reduced by the Kocher method. By holding the arm in position for a reasonable time by the use of adhesive plaster and the roller, a perfect recovery ensued.

A CASE OF SCARLET-FEVER IN THE PUERPERIUM, COMPLICATED WITH CEREBRAL HAEMORRHAGE, CONVULSIONS, AND HEMIPLEGIA, WITH REMARKS.

By Charles S. Allen, M. D., of Rensselaer County.

(Read by title, October 24, 1890.)

On the 14th day of August, 1889, my son, Dr. William L. Allen, who is associated in practice with me, was called at 9 o'clock, A. M., to visit Mrs. G. E. P., aged 23 years, in her first confinement. She was well developed, weighed about 150 pounds, blue eyes, and a massive head for a woman, with dark hair. She had never been ill. She first menstruated at about 15 years of age; but from the first was irregular—only every three months.

Family history. Mrs. G. E. P. was one of six children, and resembled her mother, who, when living, said she was never regular, nor able to nurse her children. It is not my intention, nor is it necessary to describe the different stages of her labour, but only to say that it was protracted, notwithstanding the pains were very severe. At 3 o'clock P. M., Dr. William thought it advisable to send a messenger for me. After waiting till 5 P. M., I advised the use of the forceps, which was accordingly done, and she was delivered of a living boy. We called again at 9 P. M.; found her temperature at 100°, lochia sufficient in quantity; kidneys had performed their functions well and without pain; she had also taken sufficient nourishment. It has been my custom for many years to irrigate the vagina, after labour, with a solution of carbolic acid, to prevent, as far as possible, sepsis. I therefore advised its use in this case. I wish here to draw your attention to the fact that all necessary caution was taken to guard against any decomposed clot remaining in the pelvic cavity. On the 15th she complained of pain in the left iliac region. She had obtained some sleep, and was excessively thirsty. Temperature 102°, pulse 100; troubled with flatulency and frequent eructations of gas. Thinking the excessive rise of temperature and eructation might be due to some indigestible substance, or from reaction consequent upon her tedious labour, it did not produce much anxiety. In the evening we found the temperature had risen to 104°, pulse 120, pain in the iliac region much less, lochia normal. She had strictly a milk diet.

After looking the case over thoroughly, we could not account for the sudden rise of temperature, but, from long experience and observation, I concluded that something which had not yet developed itself must be the cause. 16th, A. M., temperature 104°, pulse 120 (the same as the night before), respiration 40 per minute, no secretion of milk. On examining the skin closely, we found a scarlet rash all over the face, neck, arms, and chest, with the sore throat characteristic of scarlet-fever. The bowels had moved four times. Gave her some pulv. Dov. to arrest the discharge and produce quiet rest. At 9 P. M., temperature 103°, could not turn in bed without pain. 17th, A. M., temperature 102°, pulse 114, soreness of throat very severe, skin dry and hot, very excitable. We diagnosed scarlet-fever, she having never in her infancy or in her girlhood had the scarlet-fever. The question naturally suggested itself, How could she have taken the disease? She could not tell whether she had been exposed or not. Previous to her confinement she had frequent calls from acquaintances, but was not aware of any exposure from them. Continued former treatment and the milk diet. At 9 P. M., temperature 103.3°, pulse 136. She was very much excited, had frequent retching and nausea, talked incoherently, was delirious, and did not recognise any one, even her medical attendant. Gave large doses of bromide of potassium and digitalis, without any perceptible effect for several doses. 18th, patient still delirious, temperature 102°, pulse 140 and bounding. We concluded to use hydrate of chloral in 15 gr. doses every two hours. The result was good, and she became quiet. 9 P. M. found the skin hot and the rash abundant: had the patient sponged with hot water, also continued irrigation with a weak solution of carbolic acid. Pulse 140, and temperature same as in the morning. 19th, A. M., patient had but two hours' sleep; very delirious again, so much so that the use of the thermometer was out of the question. Pulse 140, respiration 48 per minute; kidneys and bowels were normal in their action. We concluded to give Norwood's tinct. of veratrum viride, m iii, combined with Magendie's solution, m. ii, every two hours. Called at 9 P. M., patient quite rational when spoken to, and took milk freely; temperature much reduced, which we attributed to the use of the veratrum viride. 20th, rash fading away on face, had one normal movement of the bowels; continued the Norwood's tinct., gtt. iii, Magendie's sol., gtt. i, as before. 9 P. M. passed urine in bed, and inclined to be hysterical. Pulse 120, temperature 102°. Gave the infusion of trilicum repens and flax-seed tea, also infusion uva ursa leaves, and large doses (20 grs.) bromide potas. every two hours, also beef tea and milk punch. 21st, 10 A. M., found the patient under the influence of the bromide; added a few drops of tinct. belladonna to the solution. 22d, we found the skin excoriated on the genitals, which caused her great distress. This was relieved by an ointment made of cocaine and vaseline; indeed, she became so quiet, that she

slept most of the afternoon and evening, waking only to take nourishment. The urine was highly acid, but contained no albumen or tube casts. She continued to gain slowly, and on the 27th, five days after the last visit, we found her feeling quite well, with the temperature and pulse normal: the rash had disappeared, and she desired food. Discontinued medicine of all kinds except a mixture of catechu to guard the bowels, permitted a more generous diet, allowed her to sit up and have her bed aired and made anew. Disinfectants in her room were used from the first, with Platt's chlorides. The child lived twenty-two days. Being so young he could not be properly nourished, and he was, no doubt, more or less affected while in utero with scarlet-fever, though we could not discover any rash on the surface. On the 29th she insisted that she was recovered sufficiently to have her dress on and lie on the lounge while her husband was taking breakfast, who, being a conductor on the railroad, was under the necessity to return to his occupation as soon as her condition would allow him to do so. To satisfy her wish, he permitted the nurse to get her up as desired. In the afternoon of the same day, while sitting at the tea-table, in the act of drinking tea, she suddenly dropped the cup to the floor, and slid out of the arm-chair unconscious and helpless. We were hurriedly summoned, and found her paralysed in the left arm and leg, and on the right side of the face—the tongue slightly affected when attempting to articulate. She could not make herself understood; bowels and bladder were implicated; severe pain over the right parietal bone. Treatment: Applied ice-bags over parietal region, gave nux vom., $\frac{1}{8}$ gr. tablets, every two hours. We diagnosed cerebral haemorrhage. Dr. A. Vanderveer, who was called in consultation, agreed with us in the diagnosis of cerebral haemorrhage, and expressed a favourable but guarded prognosis, and advised the use of fl. ext. ergot in ten-drop doses four or five times a day, and an increase of the nux vom. to $\frac{1}{4}$ gr. She gradually improved. On the 20th of September I saw her walking in the house, dragging her left foot in the effort. Electricity was used during the time. When sufficiently recovered to talk, she said she had a violent pain on the right side of the head (over the parietal bone). Her conversation was silly, and she would laugh without occasion for laughter. She now takes her accustomed place in the household, and is no longer under my care.

REMARKS.

On examining the literature of recent date, I find in the *Annals of Universal Medical Science*, April, 1888, vol. 4, page 236, a collection of cases from Copenhagen Maternity, reported by Dr. Meyer, in regard to an epidemic of scarlet-fever which lasted a year, and attacked during that time six-

teen lying-in women, five of whom had been delivered more than thirty days. Dr. Meyer did not find a single case in which scarlatina caused puerperal fever, but the symptoms were modified by the puerperal state. Perhaps it would best convey to your minds the difference in my case, should I quote his language in brief. He says,—"The period of incubation was for the most part short—two to four days. The cutaneous eruption was pale and not pronounced; also the affection of the pharynx. In five patients were seen miliary eruptions, but this had no significance in regard to prognosis. In seven cases there were renal complications; and in ten, rheumatic affections. The lochial flow was not influenced by the scarlatina, but the secretion of milk was in all cases insufficient. Regarding the genital organs: in six, they suffered with scarlatina (in one of these there was haemorrhage); eight presented excoriations covered with a false membrane in the vestibule; one seemed to have a septic infection, at the same time as the scarlatinal one, for she suffered from perimetritis, endometritis, and finally peritonitis; and another, attacked by scarlatina two days before she was delivered, remained up to the twelfth day before a perimetritis was manifested, and subsequently a mortal peritonitis. The other women, attacked with scarlet-fever and puerperal maladies, did not present any indications of puerperal disease until ten or fifteen days after delivery. The diagnosis of scarlatina presented difficulties only in those cases complicated by simultaneous septic infection. Meyer does not look upon scarlatina in the puerperium as offering the grave prognosis given by Braxton Hicks and others, and does not think scarlatinal cases show a greater disposition to puerperal affections. The treatment ought to have for its end the avoidance of all occasion for septic infection. The patient should be left as quiet as possible, without touching—using antiseptic lotions for the vestibule and vagina only with the greatest precautions.

"Of the infants of scarlatinal mothers, two were still-born. The condition of two was unknown. Two were taken from the mothers before the scarlatinal symptoms appeared, and

seventeen remained with their sick mothers. Of these seventeen, one died of erysipelas, one of a disease which was perhaps scarlatina, while all the others remained well."

I have thus related in part the report of Dr. Meyer to prove that the case I have here narrated is in many respects unprecedented, and also that in some instances the symptoms were identical, as, for example, the rash in my case appeared on the second day, the eruption being shortened, no interference with the lochia, no secretions of milk. In the other cases which I have quoted they were complicated with peritonitis, etc., whereas my case was not. Scarlatina in the puerperium is rare, and therefore to the young practitioner of deep importance and practical interest. The case I have related differed from Dr. Meyer's in some important features, viz., rash on the second day, remaining the full length of time, desquamation as usual; cerebral haemorrhage on the fifteenth day, attended with convulsions and hemiplegia; and many other points not necessary to relate. I consider it very remarkable that she should have recovered at all.

During forty years of practice, I have never seen a case just like the one above related. As a Fellow of the New York State Medical Association, I thought it due to report this case, thereby aiding the statistical record of rare cases in this country.

ALCOHOLISM AS A VICE, AND AS A RESULT OF INHERITED OR ACQUIRED BRAIN DISEASE.

By I. de Zouche, M. D., of Fulton County.

(Read by title October 24, 1890.)

I must apologise to the Association for venturing to occupy any of its valuable time in discussing, or rather directing attention to, the subject of Alcoholism, seeing that my own experience with the victims of the habit, or disease, has been quite limited, and I scarcely dare hope I can throw much light on it to the members of this Association. I have seen enough, however, even in the narrow sphere in which I move, to satisfy me that the importance of the interests involved in the question, to the individual and to the race, cannot be overrated.

In Bellevue hospital, we are told, certain rooms in the basement are set apart for the temporary incarceration and incidental treatment of such of the arrested intoxicants as were too drunk, or too sick, to be otherwise disposed of. These rooms are not spacious, nor suggestive of ideal sanitation, having low ceilings, and no provision for the admission of more than quite a short allowance of sunlight. But it is a great matter that even a small proportion of the inebriates are recognised as subjects for medical care,—as patients demanding the services of skilled physicians as truly as those who are every year transferred to state hospitals for the insane.

It is estimated that not less than thirty thousand arrests are made in New York city each year for public intoxication, and about nine tenths of the number are quite impartially fined, or sent to Blackwell's Island, or, in many cases, both. They are treated as criminals, on the theoretical ground that

they are mentally responsible beings, who have, more or less deliberately, broken the law, and must submit to punishment. The other tenth, or about three thousand of those arrested, are so manifestly subjects for at least temporary treatment, that they are removed at once to Bellevue, as stated.

Occasionally we hear of death occurring in the police station or lock-up, in which one of the arrested had been deposited to "sober up," preparatory to being otherwise disposed of according to law.

It might be too sweeping a statement to aver that all inebriates are so as a result of diseased or defective brain, but that such is the fact in a large proportion of cases I have no doubt. Even where disease cannot be demonstrated, we know the deleterious effect of alcoholic inebriety on the brain is so pronounced that the habitual inebriate is no longer a rational being, but, in fact, an insane person or nonentity, with the certain prospect of becoming chronically insane unless death comes to his rescue. When such a person transgresses against the law, by public intoxication or otherwise, and falls into the hands of its officers, it may be questioned whether those officers—policemen or magistrates—are competent to decide what disposition should be made of him.

In every case of arrest for intoxication, it seems to me an examination by a physician would be in order, so that inexcusable and fatal mistakes might be avoided. Officers of the law have been known to diagnose a case as "drunk and disorderly," which a competent physician might have discovered to be epilepsy or apoplexy.

Inebriety is a subject that is only beginning to be understood, and only beginning to find its place among conditions that physicians alone are competent to diagnose and treat. Hitherto the whole subject has been relegated to, or claimed by, those who were anything but physicians—philanthropists, reformers, lawyers, preachers, temperance lecturers, each working faithfully in his own particular groove to arrest the progress of the evil. All these have failed, because they were not competent to grasp or deal with the whole subject.

It was surely time that another class of reformers should arise, and inaugurate new methods, seeing that all the old methods had utterly failed. Such a class has arisen, and alcoholism is receiving its meed of attention from competent observers and investigators in the domain of scientific medicine.

One of the most competent and conscientious of this class, Dr. T. D. Crothers, of Hartford Conn., thus writes:

Physiologists and students of mental science have long been aware of the presence of a new division of the army of the insane—a division which is steadily increasing, more mysterious and obscure than the ordinary insane, and constituting a new field of the most fascinating physiological and psychological interest. It consists of the alcoholic, opium, chloral, ether, and chloroform inebriates. They appear in law courts as both principals and associates in all degrees of crime, and are called drunkards, tramps, and dangerous classes. In conduct, character, and motive, they constantly display prominent symptoms of insanity, such as manias, delusions, deliriums, and imbecilities. Yet public opinion refuses to recognise these symptoms, because they are associated with intervals of apparent sanity. Clergymen and moralists teach that these cases are simply moral disorders, growing out of a "heart deceitful and desperately wicked," and only to be remedied by moral and legal measures. Scientists who study the history and progress of these cases find that they are diseases, following a regular line of march, from definite causes, on through certain stages of growth, development, and decline, as in other maladies.

Dr. Benjamin Ward Richardson writes,—

In whatever direction the physician turns his attention to determine the value of alcohol to man, beyond the sphere of its value as a drug which he may at times prescribe, he sees nothing but a void: in whatever way he turns his attention to determine the persistent effects of alcohol, he sees nothing but disease and death—mental disease, mental death; physical disease, physical death. . . . Alcohol is a universal intoxicant, and, in the higher order of animals, is capable of inducing the most systematic phenomena of disease. But it is reserved for man himself to exhibit these phenomena in the purest (or most pronounced) form, and to present, through them, in the morbid conditions belonging to his age, a distinct pathology. Bad as this is, it might be worse; for if the evils of alcohol were made to extend equally to animals lower than man, we should soon have none that were tamable, none that were workable, and none that were eatable.

If the evils arising from the persistent use of alcohol were confined to the imbibers, and died out with them, we could more readily become reconciled, believing firmly in "the survival of the fittest." Unfortunately, however, "the evil that men do lives after them" in their children and children's children, and in no case is this seen more remarkably than in the descendants of habitual drinkers. They come into the world, most of them, with deteriorated blood and low vitality, and with various forms of nerve and brain incapacities,—neurotics of the least promising kind,—with a strong tendency, in too many instances, to develop insanity or some other product of nerve and brain degeneration.

No fact is more firmly established than that alcoholic ancestors will transmit to their children a defective brain and nerve power.—*Crothers.*

That the habit or vice of inebriety may be formed by those in whom there is no tangible proof of heredity cannot be denied, but we may reasonably suspect some defect of brain, congenital or traumatic. Though we may fail to establish the fact of heredity in given cases, it may nevertheless exist where least suspected. Inebriates, as a rule, are not likely to be well read in family history beyond the immediately preceding generation, and we know, or have reason to believe, that a truly hereditary disease may skip a generation or two, and crop out again in the third or fourth. In whatever way inebriety appears, there is no question that it is an efficient cause of brain disease, functional, and organic—a prolific source of evil in the present, a formidable menace to future generations, and a never-failing recruiting agency for the standing army of the insane.

AN OFFICE BATTERY.

By W. H. Robb, M. D., of Montgomery County.

October 24, 1890.

In medicine, each has his preference for this or that medicine as it is prepared by one or another manufacturer. In obstetrics, one likes a Hodge forceps, another an Elliot. In surgery, the operator prefers one or another knife, as it is made by this or the other instrument-maker. Our preference in medicine and surgery is always in favour of the drug, or the instrument, with which we are most familiar and from which we obtain the best results. In mechanics, simplicity in the construction of a machine is considered one of its principal recommendations. If to this is added range or capacity of work, together with quality and efficiency of the work done, we combine very desirable elements—those that render the use of the invention successful. The more simple the construction of any apparatus, the more easily will it be managed when in use, and the more readily can it be repaired. Keeping these cardinal points in view, I have ventured in this paper to ask your attention to the construction of an office battery. I shall offer no apology for describing one that I have had in use in my private office during the last year. In construction, it is simplicity itself. It is neat and cleanly as well as durable. It furnishes a steady, constant current, that will meet the demands of any general practitioner. My object in writing this paper is not for the purpose of vaunting the wares of any particular manufacturer, but with the hope that it may be the means of stimulating some one of our Fellows to investigate the subject of electricity, procure a battery, and use it in his every-day work. The neurologist has doubtless found a greater field for the

use of electricity than has been found by men in other specialties. He has in many ways extended its usefulness. Notwithstanding this, I think I am safe in saying that the whole subject has been revolutionised within a very few years. The field of its usefulness has been broadened. It is now reaching out into all the different branches of medicine, and making conquests. Although in its infancy, it has accomplished much, and more will follow. He will do the most good with it who will use it intelligently. In describing an office battery, I shall confine my remarks to a description of the battery itself, and of such additional instruments as render its use safe and practical. I shall not enter into the minute construction even of these, as such information can readily be obtained from text-books on this subject. I shall not refer to the many electrodes that are on the market, as I believe each one of us will select or construct such as are most suitable for his individual work. It is not my purpose, neither is it my desire, to discuss the different currents of electricity that have been found useful in medicine.

A modern office battery should be composed of one or more glass jars, the elements carbon and zinc, and the battery fluid or solution by which chemical decomposition is produced in connection with the zinc, together with connecting and conducting wires and binding-posts.

The jars differ in size and shape, as do the elements used. The elements are considered as positive and negative, and are usually composed of zinc and carbon. The current strength of a battery depends on the number and size of the elements used, or upon the extent of the surface of each element that is exposed to the action of the fluid contained in the jars. From what I have been able to learn from different works written on the subject of electricity, as well as from an inspection of batteries made by different manufacturers, together with the results obtained by the use of different batteries myself, I would suggest that in the construction of a battery the glass jars and the elements as made by the Law Telephone Company be used. The peculiar

construction of the carbon, as well as the size and shape of the zinc and jars, are well illustrated in Figs. 1 and 2.

The zinc and carbon are securely fastened by binding-posts to a tightly fitting cover, which prevents evaporation of the fluid and the "crawling" of the salt. The solution used is one of chloride of ammonium dissolved in pure water. The necessary amount of the chloride for each jar is furnished by the company in separate packages ready for use, if so desired.

Fig. 1.—The Law Battery.

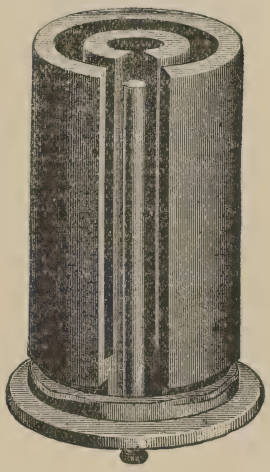


Fig. 2.—Elements.

I would suggest that not less than fifty of these jars with the elements be used. I would prefer to have from seventy to one hundred cells connected in the construction of an office battery. These will certainly furnish us with all the electro-motive force that can be desired. I would advise that a few extra cells and jars be procured for use when one is disabled or becomes polarised. The location or permanent home of an office battery should have more than a passing notice. To exclude a battery from office room and daylight is to restrict its usefulness. I believe it should occupy a place in our operating-room, to one side, but in good light.

The shelves upon which the several jars are to be placed should be so far separated that we may have easy access to any individual jar. This is very important, and will be found convenient for the purpose of detecting any single cell that may become polarised. We may thus avoid the necessity of removing more than one jar. I would have the battery enclosed in a well constructed case, furnished with tightly fitting glass doors. This would prevent the admission of all kinds of dust and dirt that would soil the instrument, as well as prevent the destruction of parts that might result from meddlesome handling. Thus prepared, the case is ready for the battery.

Each jar is thoroughly washed and dried inside and outside. Into it is emptied the package of sal ammoniac. If any should drop on the edge or side of the jar, it must be carefully wiped off. Pour in water until it rises to the bottom of the word "Law." Stir the sal ammoniac with a stick until it is all dissolved. Be particular to leave none undissolved. Do not spatter nor slop the solution, for if it touches the cover or outside of the jar, the salt will dry on the glass, and by capillary attraction draw more salt out of the jar. Clean the cover, and screw it to the jar by turning to the right. Carefully place the cell in its permanent position without shaking it. Use short pieces of wire to connect two or more cells,—the carbon cylinder of each with the zinc of the next, and the terminal binding-posts with the apparatus to be operated. When the apparatus is not in actual operation, be exceedingly careful that it leaves the battery circuit open, and that the circuit is well insulated, for otherwise the battery will soon be exhausted, *i. e.*, polarised. When polarised, immediately open the circuit, and then find and remove the fault. For the purpose of locating the disabled or polarised cell, I have used a piece of wire long enough to reach from the first to the last jar of any given row. One end of the wire is attached to the carbon post in the first jar, and, if the cells in that row are in working order, a spark is produced by bringing the other end of the wire in contact with the

zinc in the last jar. Not so, however, if the spark is not produced. In this event we know at once that the polarised cell is in this row. As with the whole row, so we test each adjoining cell by bringing the wire in contact with the zinc in each cell, one after the other, until the disabled one is found. This is indicated as soon as we fail to produce the electric spark on making the proper connection. When the polarised cell is located, it should at once be removed and a new one with fresh solution put in its place. This plan will save much time and annoyance. The disabled cell may be restored by exposing the old carbon to the sun and weather for a time, when it will be ready for use again. New zinc and solution should be used when the old carbon is again employed.

When the zinc is consumed, the solution should always be renewed. In renewing, throw out the old solution and rinse out the jar. Never, under any circumstances, put sal ammoniac in an old solution. Thus prepared and connected, we have an office battery completed, and ready for use. The wire leading from the carbon element to the binding-post constitutes the positive pole of the battery, while the wire leading from the zinc of the battery constitutes the negative pole.

The strength of the current used in electro-therapeutics is indicated by the use of the milli-ampère meter. This instrument should always be included in the circuit when galvanism is used. The one I have in use was made for me by Otto Flemming, of Philadelphia. It is well represented in Fig. 3.

The directions for its transportation and management, as furnished by its maker, are as follows:

When the meter is being transported, the needle should be arrested by turning the knob, K, until it no longer moves. When about to use it, release the needle by a reverse movement of the knob, when it will be seen to swing freely on its pivots. If the needle does not settle at the zero of the scale, when coming to rest, it is evidence of the displacing power of the earth's magnetism at that particular spot, and should be remedied

by raising or lowering the case by means of the adjusting screw, S, until the index is exactly at zero. The scale on this instrument is divided into ten units from zero in either direction. When the double switch, M, at the base of the instrument, points to the figure 1 in front of it, the figures of the scale indicate a milli-ampère each. If this switch be moved to button 10, the scale reading is to be multiplied ten times. If it points to 100, the scale reading is to be multiplied one hundred times. Thus: If the switch points to 1, and the needle indicates 3 on the scale, there is a current of three milli-ampères in the circuit; if the switch points to 10 and the needle to 3, there are thirty milli-ampères; if the switch points to 100 and the needle to 3, there are three hundred milli-ampères. When using a current of less than 10 m. a., therefore, the switch, M, should be

FIG. 3.—The "Flemming" Milli-ampère Meter.

placed on button 1; when less than one hundred are to be used, it should point to 10, and when over one hundred, it should point to 100. Before turning on the current, always be sure that the needle swings perfectly free.

When using the meter mounted with combined apparatus, such as electro-therapeutic cabinets, etc., the switch must be moved off its button, and the electrodes must be in position on the patient. Never interpose the meter in a direct battery circuit without the resistance of part of the human body.

In addition to measuring the strength of the electric current, for its safe employment we require an additional instru-

ment for the purpose of changing or regulating the strength of the current. In the current controller we have the desired instrument. I have in use, and would suggest, the Massey, which is well represented in Fig. 4.

Its use and management, as furnished by its inventor, I append:

Its function is to vary the current at will by rapidly increasing or decreasing the resistance of the circuit, from a fraction of a milli-ampère to the full strength of the battery without shock. It consists of a por-

FIG. 4.—The "Massey" Current Controller.

celain plate, provided with a sickle-shaped conducting area of graphite (soft pencil) broadening and thickening up to the terminal, where the graphite unites with a metallic surface, which is in direct contact with the battery without any material resistance. When the crank, C, is placed to the right of the hard rubber bridge, the contact comb of the crank rests entirely on the porcelain, and the circuit is broken; moving it slightly forward, it soon touches the sickle point, and the graphite mark permits the least amount of current to pass through, since the current must pass over the whole area of graphite. By turning the crank slowly and steadily onward, there is a gradual increase of current without shock, until finally the metallic surface is reached, when the whole power of the battery is turned on. A reversed action turns the current off. If the

motion is made slowly, the increase and decrease are exceedingly gradual, and the meter-needle points constantly to the exact current strength of the moment without oscillation. By its use, a more economical wear of the cells results, as all cells are worked alike. It may be used with a

FIG. 5.—My Electrical Table.

small or large number of voltaic cells, or in connection with an incandescent light circuit for medical galvanic work, but cannot be used for actual cautery.

Special attention should be paid to the following points in using this instrument:

1. Always place the turning crank on the bare porcelain, as shown in the engraving, before applying the electrodes to the patient, so as to be sure that the full resistance is interposed; otherwise an unpleasant or even dangerous shock to the patient might result.

2. After the electrodes are in place, turn the crank down and toward the broader end of the graphite slowly, until the meter shows the desired strength of current.

3. If using an incandescent current, never bring the metallic parts of the conducting cords or electrodes together unless the crank is on the thinnest part of the graphite.

4. Keep the apparatus free from dust.

5. Renew the graphite covering on the porcelain plate, as often as marks of wear are visible, by rubbing graphite over the circumscribed area from a *very soft* pencil. If the current is too strong at the very point of the graphite, rub some off and re-coat it more lightly.

Now that the battery is completed, and we are provided with a milli-ampère meter and current controller, both of which should always be kept in the circuit when the battery is in use, I would suggest that they be placed on a movable table, that may be rolled conveniently to different parts of the room. Such a table as I show you in Fig. 5 furnishes us with a suitable support for them, and for other instruments that will be found useful in the daily practice of one who uses an office battery.

IN ABORTION, WHAT OF THE PLACENTA AFTER THE SECOND STAGE?

By Darwin Colvin, M. D., of Wayne County.

October 24, 1890.

My reason for bringing this apparently trite subject before the Association at this time is, that I do not consider it void of importance, it being one which daily confronts him who is engaged in the practice of midwifery. Unique subjects may interest the hearer, but what can be said of their practical value?

Theories, if followed, are dangerous when they run counter to wholesome experience. From the writer's experience, an answer to the title of this paper, it being in the form of an interrogatory, is very simple; but if one chooses to be governed by the opinions and writings of many, it will be found not to be so simple, and the procedure advised by them is fraught with danger. It will readily be inferred that the general treatment of abortion is foreign to the object of this paper; and as it is with the management of the placenta only that I propose to deal, and that I may at once announce my position, I will answer the interrogatory by saying, Remove it, if uterine contractions do not do it, at once, or as soon as possible after the expulsion of the foetus. By that expression I mean,—never to leave the patient before the placenta is removed.

I well know that such advice is not in harmony with the writings, and, I presume, practice, of many clever practitioners; yet, from my long experience, I believe their instructions, if followed, to be dangerous, if not fatal, to the patient in a large number of cases. When the function of the utero-placental vessels has ceased, who will say that the placenta

does not become a foreign body, and as such, so long as it is permitted to remain in this highly vascular organ, is not, as a rule, likely to produce disastrous results?

I may be very radical in my views; and if I am, I have only to refer to the second abortion of which I had the care in early life, and when it seemed to be my painful duty to sit by and see die, from septicaemia, a beautiful and young married woman, because, as I then thought, after a few efforts I could not remove the placenta without prejudice to the patient. Oh! how great and inexcusable was my error! The vision of that death scene has at times haunted me to this hour,—nearly half a century! Connected with it is a verbal legacy, more precious than gold, bequeathed to me on that memorable night by a revered father, then an accoucheur of more than forty years' experience, which was this: "If you had had some one of experience remove that placenta, your patient would not now be dying. Remember, from this time on, never to leave the patient before the after-birth is in your hand, whether or not the labour is at term." I have religiously followed that injunction, from that period, in more than one hundred abortions of which I had the care, and have not witnessed a death, notwithstanding the greater number occurred during the twenty eight years immediately preceding the use of the present fashionable and excessively used antiseptic vaginal and uterine solutions.

Very recently some writer, when referring to the placenta in the general treatment of abortion, made use of these words: "As to the placenta, unless it can readily be removed, leave it, as when left it is far less dangerous than at term." Surely his obstetric lines must have been "cast in pleasant places." Against the first part of this advice I most emphatically protest. As to the truth of the latter, I know nothing from experience, and would be much pleased to see the statistics which the writer has gathered relative to it before I become a convert to his theory, as I think it is but a theory.

Of the great dangers incident to leaving the placenta in utero after the second stage in abortion has passed, it is

unnecessary to speak; as they are well known to all, it would be an unjustifiable waste of time.

While I did not intend to consume the time of the Association in relating cases, yet allow me to refer to an evening in August, 1870, when I was carried at a rapid rate of speed to see a farmer's wife living four miles from me, and who was said to be dying:

When I entered her room, I found a pulseless, speechless, and apparently dying woman—one whose blood-vessels seemed to have been effectually drained of their contents. While changing her position, with the view of gravitating what blood, if any, there might be remaining to her brain, I inquired of those present into the causes of her present condition. I learned that she had just returned from a shopping expedition to a neighbouring village, and on returning she was seized with profuse flooding. So copious was the amount, that subsequently it was ascertained to have passed entirely through the carriage cushion, and a large clot was found upon the bottom of the wagon.

She reached home in a semi-conscious condition, and in her efforts to reach the house was observed to fall to the ground. She was immediately carried to her room, and placed upon the bed. I also learned, from one who was present at the time, that eight days previous she had aborted at three and a half months, and this particular woman—a would-be midwife—had officiated. My informant positively assured me that the placenta was expelled at the time, as she had seen it. Not believing her, I examined and removed the placenta with forceps, yet was obliged to remain by the bedside nearly all night.

I relate this case for the purpose of showing that there are other dangers than septic results consequent upon leaving the placenta in utero. Some Fellow has already mentally said, "Oh! that was the work of an ignorant woman." Is that an argument, when men who would scorn the charge of being ignorant will voluntarily go and do likewise, and calmly wait for the results of uterine capriciousness, saying that such a course is far safer than even protracted (when necessary) manipulations?

I know the latter position is, as a rule, without foundation, as I have, in very many cases, spent hours in various manipulations to secure the placenta before I could effect its dislodgment; and yet the results of those manipulations were

all that could be desired. As the position which I assume to be the true one is based upon a long personal experience, it is quite immaterial to me whether or not it be corroborated by others. Still, I beg to be permitted to quote the opinions of two in its support and of one to the contrary, although there are many others.

A distinguished accoucheur of the District of Columbia said, in discussing this question,—

> The point which I wish to emphasise, and which this paper is presented to emphasise, is that the patient is not safe until her uterus is empty and firmly contracted, and that it is the duty of the attending physician to see that these ends are accomplished before he leaves the case. If left behind and serious trouble ensues, the responsibility should be placed upon the physician who knowingly left behind this secret enemy lying in ambush, ready to spring at any favourable moment upon the fair and trusting patient, poisoning her blood, devouring her strength, and perhaps killing her outright. The general principle, then, of securing the complete and speedy removal of the contents of the uterus, and its firm contraction after abortion, I insist upon as the only safe practice.

Another equally distinguished, an ex-president of the Obstetrical Society of this city, said,—

> The sooner the uterus is emptied, the sooner can the physician feel that the patient is safe.

On the contrary, I will cite the opinion of one in particular, an ex-president of this Association but recently deceased, one whose fame as a writer and teacher was not confined to America, who spoke these words:

> I do not resort to forcible removal of the placenta if retained after abortion, because such procedure is dangerous. When I have interfered, the patient has generally been troubled with subsequent metritis.

Such a result I have never witnessed. To sustain his position, this illustrious accoucheur also said,—

> I have seen cases of abortion in which the placenta has been retained two, three, and five years.

While my love for the memory of our deceased Fellow prompts me to say he "was too wise to err, too good to be unkind," still I am amazed when reading such statements, possibly for the reason that I would never permit my experience to become enlarged in that direction. My firm conviction is, that why so large a number of placentae are allowed to remain in utero after the foetus is expelled is not because of the great difficulty, impossibility, or danger, as some say, attending their removal, but is owing to the undue haste of the accoucheur, either to be released from his bondage or to enter upon new fields for conquest. If ever there is a time when the medical man should have no thought of his future, and be content to bide his time and, to a certain extent, that of nature, it is when he crosses the threshold of the lying-in room, and enters upon his duties therein. If he will not do that, then it would be far better for himself and his patient had he never been born.

In me, the belief that the placenta, in abortions, should invariably be removed as soon after the expulsion of the foetus as is possible, is irrevocably fixed, being based, as before stated, upon the care of more than one hundred abortions, of ninety-six of which I have a record; and I cannot divest myself of the belief that the accoucheur who leaves his case with the placenta in utero, and death supervenes, is guilty of malpractice.

No man should abandon any procedure which has uniformly given him good results in a large number of cases, be their character what they may, however much evidence to the contrary may be paraded before him. Should he do so, he would be unstable and unsafe, and not entitled to the confidence of his fellows, nor of the community in which he resides. Such a man, if he be engaged in the practice of midwifery, will soon find that he has shipwrecked his craft, and naught will remain but the floating wreckage as an evidence of his sciolism.

In concluding this paper, permit me briefly to say that I remember very many cases of abortion, but of which I have

no minute record, to which I was called, where the first intention of the parties was to pass through the stages unaided by a physician, and in some of them the delay had been so long that I found the patient in articulo mortis; while others, having an intuitive idea (a very sensible one) that "delays are dangerous," so far as the expulsion of the placenta was concerned,—that it should soon "come away,"—gave me an opportunity for removing it. In other cases, the delay having been much greater, while fragments could be removed, or, possibly, the whole in fragmentary pieces, yet the condition of the system, from haemorrhage and initial septic symptoms, was such that even though life was saved, there resulted a long and tedious anaemia before health was fully restored.

I have a record of eleven cases to which I was called in consultation, two only of which recovered. I will not give their details, but simply say that while I found in five of them that the medical attendants believed that the placenta should have been removed, yet they failed to be sufficiently persistent in their efforts, partly from want of energy, and partly owing to the opposition of the patients, who refused to submit to the protracted manipulations necessary, or apparently so, for their removal, consoling themselves in the indulgence of the fatal conclusion,—"I know 't will come away," or, "I have already suffered enough." In four of the fatal cases the medical gentlemen were given a carte blanche to pursue whatever course they might choose, yet listlessness and a failure to comprehend the risks involved in not removing the secundines, together with a great want of cleanliness, allowed the cases to terminate fatally. In the two cases which recovered, one of them occurring during the past year, I found this dangerous theory involved, to wit, that "the placenta, unmolested, would come away, and much interference was unjustifiable on account of the subsequent inflammatory action which must necessarily follow." However, another kind of argument prevailed, and satisfactory results followed, requiring however the most unremitting care for a long time.

Such reasoning as came near prevailing would, so far as the patients were concerned, have done away with the truth of the couplet,—

"Where ignorance is bliss,
'T is folly to be wise."

As the object of this paper is to maintain the position which its tenor indicates, yet it is far from my intention to assail those who are equally ardent in their support of the let-alone theory.

Differences in opinion should and will cause the younger and inexperienced members of the profession to pause and thoroughly investigate for themselves, as it is only by such a course that they can possibly arrive at an intelligent and satisfactory conclusion, and one which, in the evening of life, when reviewing their obstetric records, will be fragrant with pleasing recollections.

DISCUSSION.

Dr. Alfred L. Carroll, of New York county, said, that before hearing this paper, he had always thought there was no great opposition to the proposition that the sooner the dead matter was removed the better, and he had always thought this was the general obstetric practice. In three cases, where he had been called in consultation, portions of placenta were found retained, but they were simply organised, and not putrid. The author had not emphasised the persistent haemorrhages which often occurred. In one case, a lady who had been under the care of a homoeopathic physician had a severe haemorrhage, which was allowed to continue until she was blanched. The family then, becoming alarmed, sent for the regular physician, and for the speaker as consultant. An examination showed a piece of organised placenta lying just within the internal os, and the case, had it proceeded to full term, would have been one of placenta praevia. The patient made a good recovery. He had seen three such cases, where there was no septic infection, but the haemorrhage was so profuse as to imperil life. This experience had confirmed his previous opinion that the uterus should be emptied of its contents immediately, and he had always been under the impression that there could not be any numerical weight against such a very common sense proposition.

In answer to a question from one of the Fellows, Dr. Colvin said that he had not always found it easy to remove the placenta, but, on the

contrary, had spent hour after hour in such efforts. He had never adopted any invariable mode of procedure, except to remove the placenta as promptly as possible, and according to the indications in each case. Sometimes he had used placental forceps; at other times, his fingers; and on other occasions it had been necessary to distend the vagina with a view to dilating and aiding his manipulations within the uterus. He said that for some time he had had the opinion expressed by Dr. Carroll, but his mind had been disabused of this by seeing repeatedly the advice to leave the placenta alone.

Dr. E. D. Ferguson, of Rensselaer county, said that in regard to the method of the removal of the placenta, or portions of it remaining in the uterus, his practice for a number of years past had been one, *i. e.* the curette. There were two varieties of the curette,—one, the finger, which should be used when practicable, and the other, the wire curette, which might be employed with or without the aid of a speculum. This was all-sufficient except in cases where the abortion had occurred some time previous; then, it might be necessary to dilate the cervical canal in order to introduce the curette. The question of slow or rapid dilation of the cervix would depend upon the operator's judgment in each case, and upon the greater or less confidence in one's ability to avoid the septic influence present, whether existing in the dead tissue already cast off from the patient, or as microbial life within the tissues themselves. If septic material were already present, it was better to curette the uterus very thoroughly, and, except where the uterine tissue was very soft, the sharp curette might be preferable.

The placental forceps he considered a very uncertain surgical instrument; and although it occasionally grasped and removed large portions, or, possiby, even the entire placenta, there was no certainty with this instrument that every crevice in the uterine cavity was reached, as there was with the curette. It was certain that any bit of placental tissue situated on the outer aspect of the placental forceps would not be grasped in the blades of this instrument and removed.

Dr. S. B. Wylie McLeod, of New York county, had never seen a fatal case from retention of a piece of placenta, yet he considered that Dr. Colvin's statement—that we should not leave the patient until every means had been adopted for the removal of the placenta—was in many respects correct. He also agreed with Dr. Carroll that it was a general principle, and a proper surgical expedient, to remove a piece of loose placenta; but at the same time we should remember that in abortions at an early period a portion of placenta might be loose and come away, or be capable of being removed, while another portion might be as firmly attached as if abortion had not occurred. The two dangers of retention of portions of the placenta were haemorrhage and septicaemia; and,

consequently, if a portion remained firmly attached in this way, it protected the part which it covered, while the detached portion was the source from whence these dangers arose. The loose portion could sometimes be peeled off, and the remainder be left; but the prudent man would always feel anxious about the condition of his patient in the meantime. He had seen a number of cases where this had been done, and where no difficulty of any kind had been experienced. In course of time this remaining portion of placenta loosened spontaneously, and was discharged. The placenta changes its structure altogether, and either becomes a villosity, or atrophies, remaining for a long time, perhaps for years, without causing any trouble. It was important, from what had been said, to make a distinction between the portion of placenta separated from the uterine wall and the portion still remaining in close contact with it.

As regards his rule of practice in these cases, he had followed the lines laid down in the paper, and thought with Dr. Ferguson that the fingers were the best curette, when they were long enough to reach the desired spot. The placental forceps were, doubtless, awkward and not altogether free from danger, and the curette was certainly the better instrument. He had sometimes gone back so often after the placenta that it had seemed to him that the family were becoming tired of his presence, yet he could not explain to them the reason for his coming. This, in practice, formed one bar to the entire removal of the placenta at the time. Hence, if we recognise the distinction made concerning the placenta, we had only to exercise our best judgment in each case as to the time and place most suitable for its removal.

Dr. Ferguson remarked that Dr. McLeod's experience, in not having met with a single death due directly or indirectly to retained placenta after abortion, was certainly very unusual.

Dr. McLeod said that his connection with an institution had brought him in the way of seeing many neglected cases of this kind; and he had again and again removed pieces of stinking placenta from cases in which there was almost every indication of approaching death,—as, for example, tympanitic abdomen and drawn features, the almost pulseless condition, and the cold sweat over the body,—but in every case prompt removal of the offending mass had resulted in recovery.

Dr. Homer O. Jewett, of Cortland county, said that he had experienced a good deal of difficulty in cases of retained placenta after abortion, and had often succeeded better with the curette than with the placental forceps. He had always found trouble in flexing the other fingers sufficiently to allow of satisfactory manipulations with the examining finger, except in cases where the parts were sufficiently dilated to

admit of the introduction of his hand without undue pain. A lady had had an abortion, probably criminal, and being told that it was all over, she went a distance of two hundred miles on a visit, and on her return, about four or five weeks after the delivery of the foetus, she was attacked with very profuse haemorrhage. He had succeeded in removing the placenta after some hours, and found it indurated and contracted down into a small spherical mass, and the membranes were obliterated. It was entirely free from any odour of decomposition, although it had been retained for over four weeks in utero after the expulsion of the foetus.

SEROUS CYSTS AND CYSTIC FORMATIONS: ABDOMINO-PELVIC.

By Thomas H. Manley, M. D., of New York County.

(Read by title October 24, 1890.)

Cysts and cystic formations, in every degree of development, being of very frequent occurrence in that cavity roofed above by the diaphragm, I shall select for study that entire district below the thoracic arch, bounded laterally by the parietal muscles of the abdomen; anteriorly by the median line, the central recti, the ensiform cartilage, and pubic symphysis; posteriorly by the spine, and the powerful dorsal muscles which play in either of its lateral grooves; the abdomino-pelvic cavity, which in the female encloses all the organs of generation, and, in both sexes, the whole digestive apparatus, except two short segments at either extremity.

Since the advent of modern innovations, which have made it possible to study the elementary nature of neoplastic formations, and to treat them successfully with the aids which scientific investigations have placed within our reach, it is interesting to consider in what these new formations consist, as far as they concern serous cysts and cystic formations. In the present instance there is no pretence to enter into an elaborate survey of the prodigious strides made in the management of intra-abdominal cystic disease during the past twenty years, or to examine into the validity of the almost endless theories regarding the primary cause. My object will be rather to direct attention to a few features, which seem to be of some interest, and, perhaps, of a little practical value.

THE NATURAL HISTORY OF SEROUS CYSTS.

What is the essence of cystic disease? Have cysts an independent existence, and do they possess within themselves

the power to reproduce and multiply their like? Have they a life limit, advancing to a certain stage of development and then manifesting retrogressive changes?

A serous cyst is a structure of a low grade of development, because it does not, under ordinary circumstances, produce mixed elements, and it maintains to the end, when unencumbered by pathological changes, its original histological structure. Consisting, anatomically, of an investing envelope, which is composed of cellular elements with more or less numerous nucleated strands of fibrous tissue, it becomes eliminated only by age or inflammatory changes. Internally, it is lined by endothelial cells which have the property of either increasing or diminishing the quantity of the enclosed liquid. Externally, as it leaves its primitive nidus, it lifts up, and invests itself with a duplicature of peritoneum.

The liquid contents, although designated serous, possess no properties in common with the serum of the blood, except in physical character, and are generally of a low specific gravity, of an alkaline reaction, bland and non-irritating.

They sometimes are found with a narrow, pedicellate base, but more often they have, along with an extensive attachment from beneath, several collateral adhesions.

We have monocystic and polycystic growths, the former being the more common; with the latter, we may find, springing up from the centre, one very large parent cyst, about the root or stalk of which there arise, like so many buds or offshoots, several others of varying sizes. There are not infrequently clusters, or groups, of these daughter cysts studded over the outer surface. What is perhaps most frequent, they form internally in bunches, and fuse together, when the neoplasm is designated multilocular.

That cystic tumors may undergo, in the process of time, myxomatous, colloid, fatty, or purulent changes, is now an unquestioned fact.

How cysts originally came into existence is yet unknown. There has been much speculation on this subject, but no theory has yet been constructed which will satisfactorily

account for them. The latest view is, that they arise from anatomical or corpuscular elements, which, in intra-uterine life, wandered away from their normal habitat, and were not absorbed or assimilated, but in the progress of time, under favourable influences, asserted their individuality, or aggregated together, and made their existence manifest under divers forms.

Another later and more plausible view is, that they have their origin in unabsorbed foetal remnants, from the Wolffian bodies, and the rudimentary Graafian vesicles.

The latter view, however, has no substantial, logical support, and is opposed by facts which render it utterly nugatory; among which may be mentioned the fact that the foetus *in utero* may be the subject of such extensive cystic growths within its abdomen, as to render delivery by the natural passages impossible. Further: Why should there be but isolated cases of serous cysts arising from stray corpuscles, when those so called foetal remains can be demonstrated microscopically within the substance of the broad ligament, and in the reticulated structure of the ovary, in nearly every subject?

Lastly, although those who maintained the theory of primitive or antenatal origin have specially selected the male and female genitals as the parts in which the work of evolution is retarded or deranged, yet, as a matter of fact, serous cysts may be found in any structure within the abdomen invested by the peritoneum.

They possess most active regenerative power: hence, when extirpated, they frequently reappear, regardless of whether any portion of the matrix is left or not; and if not springing up in the same locality, they may elsewhere,—whence we say the person has a predisposition to cystic disease.

That they have a life limit and are individual entities, I am strongly convinced. In the whole range of creation the expanse of life has confining lines: hence, judging from analogy and from the frequency of cystic disease found *post-mortem* with those who in life were unconscious of its existence, we may assume that, as a rule, they reach certain

stages of development, when they cease to grow, and fade from sight.

From many conclusions arrived at only after careful reasoning, I am convinced that, like the hepatic or cerebral cyst of echinococci, these serous cysts have their origin from an undiscovered microbe which gains entry by way of the respiratory or alimentary passages, and that when this germ finds suitable soil, or when the system is in a receptive state, it rapidly develops.

A serous cyst is parasitical, fastening itself on and drawing its sustenance from wherever it may commence its growth.

These formations are essentially degenerative in their character, and though they grow and thrive under most diverse circumstances, yet it scarcely can be said that one is in perfect health who has borne them, in large numbers, or of considerable size.

Against the doctrine of extraneous or extrinsic origin, it may be alleged that we may find these tumors when direct infection would seem impossible, as when we encounter them congenitally, and, in addition, nothing has been discovered by microscopists which would tend to support this hypothesis.

All must admit, however, that they are excrescences, and have very many features presumptive of independent organization, and that their presence in the brain of the foetus is conclusive proof that the microbe or offending agent may enter through the circulation.

That the infinitesimal elements which may go to originate these cysts have so far eluded the microscopist need not excite wonder, as the study of them, in the direction of pathology, is yet but in its infancy.

AETIOLOGY.

With the microbian doctrine as a fundamental basis to start on, the causation of these growths under consideration is greatly simplified, and their nature better understood. Without it, as we are to-day, the aetiology of serous cysts may be

written in one line. We know absolutely nothing about it. We are rich in speculation and theory on the subject; in fact, however, we are in total ignorance. Why we should usually go to advanced age before these cysts appear, why one brother is attacked and another free, or why women are more subject to them, we do not know.

But there are many phases of these developments, with which it is highly important that we should familiarise ourselves, particularly in relation to their natural history.

As this parasitic formation may be regarded, as a rule, as a process of degeneration, we meet it very frequently in the aged woman, on the periphery or in the stroma of the ovary, in the kidney and other situations. In forty-three post-mortem examinations in my service at the New York almshouse hospital, on women past sixty, thirty had cystic disease in the ovary, some on one side only, but a large proportion on both.

Age then must be regarded as a predisposing cause, and as to sex, women by all odds are the greatest sufferers from ventral or pelvic tumors. Maidens, barren wives, or women who deliberately diminish childbirth are more prone to cystic disease than good breeders who bear large families. At the menopause, the third epoch of woman's existence, these tumors are most disposed to make their existence known.

Sex makes its impress felt in the organs most susceptible to the disease under consideration. The uterus and its adnexa are the favourite areas of selection in the one; while with males, the renal tissues, the supra-renal bodies,—the lumbar, sacral, omental, and mesenteric regions seem specially susceptible to encysted dropsies, or what is commonly known as encysted peritonitis.

There is no question in my mind but that many of these so called abdominal dropsies—ascites—in which there may be a large, but quite symmetrical, accumulation of liquid, and wherein there is an absence of evidence of organic disease, and medicines make no impression, but one free tapping promptly cures the patient permanently, the medical attendant may mistake a local condition for organic disease, and he

may simply drain a cyst without entering the peritoneal cavity at all. Such a case came under my observation not long since. It teaches a most practical lesson, and though my diagnosis was lacking the confirmation of a post-mortem examination, yet I scarcely think a mistake was made.

A young man of twenty-three years had been ailing at home of some obscure abdominal disease which resisted medical treatment. As his funds ran low and he was advised that a hospital was the proper place for him, he entered one of our principal institutions, where he was purged, blistered, starved, and put on a milk diet,—but his belly became larger and harder, his urine icteric and scant; his stomach was crowded back against his spine, and though he was hungry, anything entering it added to his discomfort. His distress for breath was so great that he did not venture to lie down for fear of smothering, and hence what snatches of sleep he got were taken in the sitting posture. Making no improvement in the hospital, his parents took him home.

From the history that I got, I was not so sure about his condition being wholly attributable to organic disease. He suffered from pain some time before the swelling appeared, and the fulness was said to have arisen in the epigastrium and descended towards the pubes. Besides, on physical examination of his abdomen, which was greatly distended low down in the left hypochondriac region, the tympanitic note elicited indicated the bowel lying against the abdominal wall, and not away from it. No change in posture altered this: hence, taking everything together, I ventured to assure the parents that I could very quickly give him a chance for his life, and probably cure him. To make certain, I passed in an exploratory needle, but superficially, and was rather chagrined to find a fluid with all the characteristics of ascites. Passing it in again deeply, in the opposite flank, where the swelling distinctly but slightly bulged, I withdrew a watery liquid wholly unlike the former.

Taking each away in a separate vial, I examined them, and found one bile-stained serum, and the other opalescent in

colour, of a low specific gravity, with no cell detritus, and of such composition as we commonly find in ordinary cysts. I was now satisfied that the ascitic fluid was secondary, and the bile-tinge was due to an impediment of the gall flow—a retention. On examining the urine, I found it highly albuminous. Both lower extremities were in an anasarcous state. As a free incision was not permitted, after due antiseptic precautions I thrust a large trocar into the most prominent and resistant part of the abdomen, low down, near the median line, in the left iliac region. Something more than two gallons of cystic fluid escaped. I then twisted into the puncture a strand of silk for drainage.

This young man rapidly and completely recovered. All his organic ailments were solely attributable to pressure, which, when removed, not only gave immediate relief, but was quickly followed by full and unrestrained functional and organic action.

Had his condition been as previously presumed, the evacuation would have been followed by a refilling, and the organic disease would have remained. Although cystic disease seems to manifest a special predilection for the female genitalia in early life, with the male it is more common in advanced age, in the external genitals, in the form of spermatocele, simple and encysted, and as hydrocele. Renal cysts, too, are more common in the male, and also make their appearance late in life.

The intimate sympathy between the generative and urinary organs is a matter of common observation. In kidney disease sexual desire is usually in abeyance, while in consumption the power of procreation remains to the last. With the female, this association is not so evident, nor is parenchymatous or calculous disease of the kidney as common with them; however, it is seldom where there is any wide deviation in generative function with them that there is not a responsive renal manifestation. The frequent coincidence of nephritis with albuminuria, or even total suppression of the urine in pregnant woman, is often witnessed.

Inasmuch as serous cysts are seldom seen, except in the reproductive and urinary organs, their origin and growth often may be regarded as in some manner, as yet inexplicable, connected with functional derangement of these organs.

I have met with two cases of abdominal cyst which might be traced to traumatism. The relation between cause and effect under those circumstances is not very clear: hence the only explanation I can offer is, that the nucleus or germ was present in a dormant state, and was roused into active growth by the vascular engorgement coincident with the incipient inflammatory state following the injury. This is often the history of cancer, and, I think, will occasionally apply to benign growths as well.

THE MORBID ANATOMY AND PHYSICAL CHARACTERS OF SEROUS CYSTS.

Before an attempt is made to discuss the pathological changes and morbid conditions resulting from serous cysts which compromise health or endanger life, we must have a clear understanding of the regional anatomy of the abdomen, its guides and landmarks. Probably, for general purposes, the arrangement of Treves (Applied Anatomy) is as useful as any; but, for surgical purposes, I prefer the plan of Hewitt and J. Marion Sims (Abdominal Tumors, etc.), according to which a horizontal plane passing through the tenth rib on either side is the epigastric region, the lateral portions of which are the hypochondriac regions. The umbilical region is bounded by the lower limit of the epigastric region, and below by a line passing between the anterior superior spines of the iliac bones. The hypogastric region includes that portion situated below the line last named, the inferior boundaries of which are the pubes and the ligaments of Poupart.

It can readily be perceived that after a large cyst of deep origin has gradually advanced toward the surface, pressing aside, crowding down, or ballooning up the solid and hollow

viscera,—gluing them together, twisting and compressing them into every conceivable shape and direction,—the normal lines, curves, angles, and grooves of descriptive anatomy have but little practical application: hence, when an operation is undertaken, the operator must not only be familiar with the undisturbed arrangement of health, but also with the changed appearances with respect to colour and other visible characters, and he must also employ his sense of touch, which is the most valuable of adjuvants in the physical diagnosis of the abdomen. The ear, and nose too, must be trained to assist in interpreting the confused and embarrassing conditions often present.

To meet these requirements, a practical knowledge of morbid anatomy and applied physics must be attained. The cyst coming in its primitive stages from a microscopical corpuscle assumes every diversity of form and outline,—spherical, oblong, flat, conical, branched, serpentine, according to the quality and direction of the resistance which it encounters.

The enormous distending power of the imprisoned liquid of those sacs, I must acknowledge, is, to me, quite incomprehensible. There certainly is no principle in hydraulics to explain it, as far as I can learn. A concentrated pressure to the square inch, which will put the cystic wall in such an extreme, resisting tension as to give it the hard, stony feel of a compact, scirrhous growth, and deceive the touch of a trained diagnostician, one would think must choke off every sort of circulation in the vessels which nourish it.

The walls of a barren cyst are of varied density, but never very thick. The tumor remains pedunculated, until, by friction or weight, it chafes the neighbouring parts, when plastic inflammation binds it to them. Now, as it swells in volume or changes its direction, it drags along with it those movable viscera to which it is firmly bound, and we begin to notice those symptoms, or warnings, by which we are informed that a tubular structure, or important organ, is becoming compromised; and if we are not guarded, and fail to examine

critically into the case, we may consider the condition as dependent on constitutional and not on local influences.

The minute anatomical cells of these cysts occasionally take on many changes both in their chemical composition and morphology. They are dependent on variation in the vascular supply, on inflammation, and on the involution peculiar to all neoplastic bodies as age advances.

Besides, it is fair to presume that many of them, particularly in the female, undergo spontaneous rupture or give way to sudden pressure or strains, and are wholly absorbed.

Along with atrophic changes we may have those dependent on increased vascular action, accompanied with a diapedesis or transudation of leucocytes and coagulable lymph, which modifies their former translucent colour by a flocculent, turbid material, giving the cystic contents the appearance of genuine pus. The watery elements of a cyst occasionally assume a gelatinous consistence, or when the smaller capillaries rupture, blood is blended with their alkaline contents, which gives them a dark, pigmented appearance. When many cysts fuse together, we have the polycystic or multilocular tumor, which is seldom seen, however, except in the female, where it attains vast dimensions. This growth is composed of most complex elements, and as it clearly belongs to the proliferating, more highly developed, new growths, it will not be considered here.

Cystic disease within the abdomen is said to be intra-peritoneal and extra-peritoneal. Neither assumption do I regard as quite correct. Every so called intra-peritoneal cyst has a peritoneal investment, except at its stem, where it comes up from the areolar tissues. The retro-peritoneal, or extra-peritoneal—among which are classed the renal and lumbar cysts—originate in or about the serous glands of the pelvic fascia, and invariably have a peritoneal investment. But there is this important anatomical difference in the situation of the two, viz., that one can be reached and drained without in any way involving the serous membrane; while in the other, the peritoneal cavity must always be opened.

Cystic disease may arise simultaneously with cystic formations. This association may lead to great difficulty in diagnosis, and unfortunate results in treatment. No nook, passage, or tract on the surface, or within the many complex and intricate folds of the peritoneum, but may be the seat of cystic growths. Hence, when they arise in close proximity, or in connection with various organs, their presence may be mistaken for other pathological conditions, if this fact is not constantly borne in mind.

CLINICAL HISTORY AND DIAGNOSIS.

The subjects of cystic disease are seldom afflicted with pain until the tumor, by its size or location, presses on a nerve, induces obstruction, or excites inflammatory action. Many may carry them a lifetime, unconscious of their existence.

Yet it is a rule, that in a person with extensive cystic disease, there is a degree of emaciation, physical vigour is diminished, the nutritive processes are defective in action, and bodily strength is greatly impaired.

The patient often, long before the cyst has been suspected and even when it is of small size, will complain of deep-seated, fugitive pains,—at one time intense, and at another moderate or absent. If these growths occur in women, at each monthly flux there will be an aggravation of symptoms. I have noticed in every case which I have yet seen, that the skin has a clayey, tawny colour, not unlike the cachectic tint of malignant disease.

The location, extent of distress, and constitutional disturbances depend on a multiplicity of factors. In one, but slight inconvenience is felt, while in another, life is tortured with racking pains; patience, fortitude, and hope fail, and the stoutest, most vigourous and energetic, give way and succumb.

The symptoms, those dependent on vascular, neural or inflammatory changes, will accentuate themselves in proportion and character according to the organ or structure

involved. They arise primarily, and chiefly from two causes—pressure and inflammatory action.

By tension, strain, or pressure on important nerves or their filaments, pain localised, diffused, and reflex arises. The intimate intermingling and close association of the branches of the genito-crural, lumbo-sacral, and the external pubic nerves, give rise to a most embarrassing association of symptoms, when serous cysts of small size but of firm consistence develop along their course.

In woman, under these conditions, the pain may be referable to the ovary, uterus, ureter, kidney, or the deep structures along the pelvic floor: hence its clinical significance, when taken alone, is of little value. The large size of the tumor may not always occasion so much inconvenience or interfere so much with functional activity as one of minor dimensions, which has contracted extensive adhesions and will not permit of the free play and the unrestrained movements so necessary to the varying capacity and shifting relations of the abdominal viscera.

Among the many phases of structural and organic implication witnessed in the progress of the growth of cysts, we may mention a few of those having the greatest practical import:

The first and most injurious is that in which, by pressure or tension, the contents circulating in or occupying a tubular organ are impeded or wholly arrested. When a large venous trunk is obstructed, we will have oedema of the limb, a turgescent state of the blood-vessels, and the peripheral congestion. Symptoms attributable to compression of the vesical outlet of the bladder or the rectum cannot be misconstrued. It is only when the cystic walls occupy a widespread area, and commence to encroach on the portal system of vessels, the hepatic and renal viscera, and their excretory ducts, that we are warned of the serious inroads on health which a serous cyst may originate. Of the solid viscera within the abdomen, the kidney seems to suffer most. Lying in close apposition to the spinal column, it comes in for a large share of compression when the growth presses from

before backward. Its long excretory duct, passing downward behind the peritoneum and over the sharp edge of the pelvic brim, is greatly exposed to occlusion, both by tumor pressure and obliteration of its lumen as a result of excessive plastic exudation.

Accordingly, in those instances in which we have associated a renal cyst from a urinary retention, and an enormous distention of the renal pelvis with a common non-proliferating serous sac, it would appear that the secondary difficulty was caused by the primary cyst in some way pressing aside, hoisting, or closing the ureter, when the enlargement within the renal capsule followed.

This view is strongly sustained, too, by certain unequivocal chemical phenomena. As, for instance, when the patient first complains of the deep-seated pain along the loins, in the back, or pelvis, if there is no diminution in the quantity of urine voided or variation in its chemical or physical composition, we know the gland is not involved. But on the other hand, contemporaneously with the now visible swelling, made prominent by the serous fluid crowding a cyst outside the quadratus lumborum muscle in the direction of the least resistance, or by the serum gravitating into and behind the loose sacral fascia lifting up any pelvic cyst which may lie in its way, we are warned of serious renal complications by symptoms of suppression, uraemic intoxication, and marked constitutional derangement.

Renal cysts are more common in the male sex, arising in the loose cellular tissues in which the kidney is lodged, so that when a man much past the meridian of life complains of deep-seated pain high in the loins with no evident kidney disease, particularly if there be a localised, movable fulness, we should examine cautiously, and make a diligent search for a neoplastic growth of the serous genus, for no hygienic measures or constitutional remedies will avail to give relief, and valuable time will be lost by temporizing expedients.

When we reflect what a complex anatomical structure the

lymph sac of the abdomen is, with its manifold reflections and duplicatures, and remember that anywhere within its laminae those serous cysts may arise, we may form an idea of the number of organs in immediate contact, and even remote, which, either primarily or secondarily, suffer functionally or structurally from encysted dropsies within the abdomen. We may also contemplate, if we cannot interpret, the almost infinite group of symptoms.

The serous lining of the abdomen possesses two qualities preëminently peculiar to itself. Along with its wonderful power of absorption, it will respond to the slightest irritation by plastic inflammation. Now, when the growth of a liquid tumor is gradual and it spreads among the movable viscera, it may, in women, occupy a very widespread area without embarrassment to the respiratory act, as with them breathing is almost wholly thoracic. With the masculine sex, on the contrary, when free movement of the diaphragm is prevented, death is imminent from suffocation, so that by this mechanical impediment—a voluminous tumor—alone, life may be sacrificed. The peritoneal surface is tolerant of the intrusion of a neoplastic tenant, when it spreads evenly and develops slowly; but in time it will restrict its movements and unite with it by adhesive inflammation. It is usually at this stage that the patient becomes, for the first time, conscious that there is something wrong, as indicated by a localised pain of persistent character.

Ordinarily, the peritoneum and the subserous cellular tissue are quite destitute of sensation; but when inflamed it is exquisitely sensitive, and is the seat of pain, which, if unrelieved, often is quickly fatal.

Those peritoneal tumors which spring up from the pelvis, and mainly occupy the hypogastric region or either flank, or those originally sprouting from some minute element within the epiploön or mesentery but are within the peritoneal cavity, are not attended with so much difficulty in diagnosis as that variety known as encysted peritonitis, or those which continually take a course under the retro-peritoneal tissues.

The latter, lying behind the peritoneum, attaining vast proportions, and ballooning up the intestines in their march towards the pelvis, are extremely difficult of recognition, and may be confounded with ectopic pregnancy, local haemorrhages, phlegmonous disease, or ovarian tumors. They may, however, generally be recognised by the clinical history and physical diagnosis.

Effusions into the broad ligament, or growths developing within it or the ovary, commonly lie in contact with the parietal peritoneum, *anterior* to the hollow viscera; while with retro-peritoneal cysts, or those rising in the lumbar region or the mesenteric glands, the bowel lies *in front;* and while the patient has, perchance, an enormous dropsical effusion within the abdominal walls, with embarrassed respiration inducing disorder in the circulatory and secretory organs, yet the peritoneal cavity is not involved; in fact, the sac, with its enclosed viscera, is lifted *en masse* often in a most distorted shape, like a sort of float, while the loose pelvic tissue and lumbar fascia are stretched from their attachments by the enormous liquid accumulation.

In a case of this description under my care last summer, the patient suffered terribly. His bowels and bladder annoyed him exceedingly. Though hungry, yet the admission of food into the stomach gave him additional distress, and he was not quite at ease till he had vomited. So laboured was his breathing, that sleep in the recumbent posture was impossible. Pain in the back down the course of the anterior crural nerves and up over the praecordia distressed him unceasingly. The lower limbs and the scrotum were greatly swollen, as in the preceding case, by oedema, and even over the sacrum the thumb would leave a deep depression.

In this case two well known consultants had failed to make a correct diagnosis. One would have it cancer of the kidney, the other set it down as cirrhosis of the liver, with ascites. It is needless to say that they gave no hope of recovery, as well they might not had their opinions been correct!

A minute and detailed description of the differential diag-

nosis of those serous cysts growing only from the female reproductive organs cannot be undertaken on this occasion, for it is a subject which strictly belongs to the specialist in women's diseases, many of whose valuable monographs and treatises can be had in any medical library. It is evident, then, under many circumstances, that one may confound cause with effect; that skilful physicians, from over-confidence in their ability or undue haste in examination, may attribute certain signs to organic disease within the abdomen, when the real difficulty is wholly external, or in a part in no connection with it, and the signs are the result of hydraulic pressure from cysts.

CYSTIC FORMATIONS.

Everything, not originally arising from a microscopical element, of a liquid nature and which is encapsulated may be regarded as cystic formation, although Sir James Paget excludes the products of inflammation—as abscesses, or pus accummulations—and haematomata from the category of cysts. They are mainly attributable to blocking of the tubular passages of exit for the glandular secretions.

The ureter is obstructed either by a calculus, or by a narrowing of its lumen from inflammatory thickening within or malignant disease from without. The ureter bursting, the escaping urine dripping into the peritoneal cavity may be encysted, until the rent is healed or the impediment removed.

This obstruction of the urine produces hydronephrosis, and becomes pyonephrosis when the cyst's contents take on purulent changes either before, or subsequent to, the artificial evacuation of the liquid. (Of forty-three recent cases of hydronephrosis which I have collected, twenty-nine, or nearly two thirds, were on the right side, and twenty-six were in men.)

As the caecum, the gall bladder, and the orifice of the pancreatic duct, lie on the right of the median plane, we must expect to find every sort of enlargement there more frequently than on the left side.

Impediment to the free passage of a gland's secretion depends on conditions which originate within the duct itself, or those which operate through disease of adjacent parts.

Biliary and renal concretions, when large and not acted on by the bile or urine, are occasionally impacted in the duct. Malignant disease, however, although infiltrating in every direction, will seldom, when in proximity to the kidney or liver, embrace or wholly occlude their drain-vents. Still a new growth of any kind may crowd them aside, and close them. When the opposite kidney is healthy and the obstruction is incomplete, beyond some slight local disturbance no marked impression is made on the constitution. But when the renal pelvis expands, the hydronephrotic fluid increases in volume, the systemic circulation becomes impregnated by absorption, the urine is diminished in quantity and becomes highly albuminous, then the time has arrived for prompt surgical interference. A hydronephrotic cyst is of more rapid development than a simple cyst, and from the history, with the direction which the accumulation takes, it may generally be recognised. However, if there is much doubt, the exploratory needle is an infallible test. The chemical examination of the fluid withdrawn will decide the question. As the encapsulated urine is always behind the peritoneum, the needle entering posteriorly is *outside* the peritoneal cavity. Certainly there are many pathological conditions in which the use of the exploratory needle is interdicted, and it is only when the enlargement is of a fluid character, and when we are quite certain it is extra-peritoneal, that we may adopt this expedient with safety and advantage.

We can scarcely confound a hydronephrosis with similar conditions, provided the state of the patient be thoroughly investigated and we keep him under observation an ample length of time to enable us to come to a correct diagnosis by exclusion. A visceral cancerous growth is attended with little pain, but when imbedded in the loose tissues of the loin, it may present characters of a kind which will puzzle the most wary and shrewd diagnostician.

The kidney itself occasionally takes on parenchymatous changes of a sarcomatous nature, which will greatly increase its volume and cause displacement. Pus accumulation, or haemorrhagic extravasations in the iliac fossa, when the clinical features of each are considered, will not probably mislead.

Happily, simultaneous or double hydronephrosis is never met with; at least, in scanning the English and French literature on renal pathology, I find no well authenticated case of such a complication. Hydronephrosis may have various terminations, when art does not interfere. If the ureter is clogged by a blood-clot, or by a mass of fibrinous lymph, or by a small calculus, as soon as either of these disintegrates the canal is reopened, the swelling collapses, and the symptoms suddenly vanish.

In the event of a thrombus or other impediment to the blood-supply remaining, the pressure on the renal artery will reduce the blood-supply and gradually produce an interstitial absorption of the secreting structures of the kidney, so that in time, as the gland finally yields up its existence and wholly disappears, the remnant of urine is disposed of by the circulation. This theory, I believe, will account for the occasional absence of a second kidney in cystic disease. It certainly is singular that nature should be so often remiss here. I have yet to learn of a foetus born with but one kidney. Whoever heard of an infant with one lung or with one testicle (except ectopic) at birth?

The cyst may burst into the peritoneal cavity or into the loose cellular tissues.

The most common termination for it, however, is gradually to destroy the patient by mechanical pressure, inflammation, and pain.

Obstruction of the ductus communis choledochus, when permanent, is inevitably mortal, unless the gall can reach the bowels by some other route than the duct.

The aetiological factors of causation are essentially the same here as with the kidney, but owing to the wide difference in

anatomical arrangement, and the physiological properties of the bile, its retention, with cystic distention, is one of the most formidable complications which the surgeon ever can be called on to deal with.

The only pathological conditions in connection with the liver, apt to be confounded with simple obstruction, are those dependent on echinococci and hepatic abscess. The parasites of hydatid disease gain access through the digestive organs usually, and infest the gall bladder and hepatic tissue by mounting the cystic duct. A cystic formation, originating from these entozoa, may undergo rapid development, and speedily destroy life if not relieved. Such a case I saw in a boy seven years ago, in whom one of those masses developed within a week, as nearly as could be learned. They sometimes take an opposite course, however, as the eloquent Watson relates in his incomparable "Lectures on Physic." (Third Amer. ed., page 512.)

His patient was a young nobleman, in whom, while examining for chest disease, he found a large tumor over the area of the gall bladder, with a smooth, convex outline. The young man never suffered the slightest inconvenience from it. He died some years later, when, on post-mortem examination, the cyst wall was found shrunken and collapsed, and filled with the husks and débris of the parasites long since defunct. These remains were now entombed within the envelope whence they had drawn sustenance.

The gall bladder is capable of enormous distention. Lawson Tait tells us how he has mistaken it for an ovarian tumor (Lancet, May 12, 1890). The gall duct must share this property of extreme dilation to a large extent, else we could not account for the passage of the immense angular and faceted biliary calculi which find their way into the intestine, and escape without detriment.

When the bile is shut off from the intestine, we have marked and unmistakable symptoms of serious trouble. If the bile is dammed back, it seeks a temporary outlet through the blood, when the kidneys come to the relief of the liver,

and eliminate large quantities of bile through the urine. Owing to the absence of the secretion from the intestine, digestion is deranged, and, independent of auto-intoxication, in time the patient will sink from inanition. A rupture of the cyst, when the bile has become concentrated and inspissated, must be followed by a fulminating peritonitis. Generally, as the walls of the gall bladder spread upward, they excite a localised perihepatitis, which glues the stomach, the liver, the omentum, the cyst, and the parietal-peritoneum together in such a manner as safely to confine the accumulated bile, and make an incision into it a safe and simple expedient.

Malignant disease starting in the stomach, and as a secondary growth involving the gastro-hepatic omentum, by contiguity soon extends into and implicates the secreting structure of the liver within the capsule of Glisson, and when in close contact with the conical extremity of the gall bladder may cause obstruction, partial or complete. However, considering the relative frequency of cancer and sarcoma in the hepatic tissues, the absolute arrest of the gall flow by infiltration or contraction is rare. I saw two cases recently which demonstrated the conservative provision of nature in this respect. In one, a young woman, a sarcomatous growth had nearly tripled the normal volume of the organ, and yet there was no involvement of the biliary passages. With the other, who was an aged man with multiple nodular disease, the passage to the bowel was likewise patent.

The symptoms peculiar to obstruction of the common duct have reference to secondary conditions dependent solely on the arrest of hepatic function in the beginning, but later on to systemic intoxication with its attendant consequences. We will have the same colicky pains, loss of appetite, and loss of bodily strength, disordered digestion, and localised fulness when the cyst's contents advance towards the surface, as would be encountered with the renal cyst in the loin.

Although the pancreatic or thoracic duct may close and become encysted, and cystic tumors in other organs or tis-

sues within the abdomen arise, their occurrence is rare; and what has been said of the formation of cysts in other parts will generally apply to them.

TREATMENT, PALLIATIVE AND RADICAL, OF SEROUS CYSTS.

The prodigious progress wrought in operative procedures of late years has largely revolutionised the surgical management of new formations. Since we may at our pleasure separate, as it were, the corporeal from the psychological being, and place our patient in the quiet sleep of anaesthesia, sensation being in abeyance, we strip an operation of all its former horrors. Besides, those harrowing anticipations of the dreaded ordeal are something of the past.

On the part of the operator, his case being judiciously selected, he may promise recovery, frequently, with almost a certainty. He feels no longer the terrible apprehension of former times; but, nerved with a confidence born of a correct knowledge of the application of modern resources and of anatomy with its cognate studies, combined with critical observation and extensive experience, he proceeds to lay bare the most delicate and vital structures at his leisure.

It would seem, then, that the question of how those local dropsies or simple serous cysts are to be managed was finally settled beyond dispute or argument. But the human body is something more than a machine, and there are many circumstances which demand our most careful consideration before extreme measures are resorted to. No one would press for a surgical operation in the aged, or one suffering from a serious constitutional disease.

Probably, with the majority of cases, those simple, non-proliferating cysts will, in the course of time, spontaneously disappear, or remain in a quiescent state, giving little inconvenience except by their weight. Further, the extirpation of them does not always insure their non-return, as the systemic predisposition to a recurrence remains; and although they may not return in their original nidus, they often do

elsewhere after a limited time. An extensive incision into the abdominal walls results in a diminution of local resistance and a tendency to hernia. When evulsion of the sac entails tedious detachments of adhesions, a viscus may be lacerated, and we may have troublesome haemorrhage or active inflammation.

We must not allow ourselves to be deluded by the records of palatial hospitals, as their statistics can scarcely be regarded as reliable criteria for the isolated rural practitioner. Not that they are wanting in truth, or are varnished, but because there is a disparity in the facilities for operating. In many hospitals the cases are selected with great care; the operator is supported by a staff of trained assistants, accustomed to operations; he has everything in the way of appliances and instruments which art and a lavish outlay can provide—added to all, good nursing and fair hygienic surroundings.

When cystic disease threatens to compromise health, and is the source of pain or discomfort, internal remedies will make no impression on it, and we are obliged actively to interfere in many cases. The elder generation of surgeons and practitioners recommended physiological measures of relief when the cysts were of recent growth and situated in the pelvis of the female. They recommended marriage and childbearing. Their premises were sound, for when fecundation followed copulation, the immediate active vascularity in the former languid, congested capillaries soon aroused the latent vitality in the reproductive organs, and all superfluous or adventitious productions of recent growth and moderate size underwent degenerative changes and disappeared. Others, of greater volume and of compact capsules, as the gravid uterus, rose out of the pelvis, were torn from their attachments, and were even ruptured. The parturient state passed and involution complete, nothing remained of the adhesions or the cysts. If they did, a repetition of the same treatment was prescribed. Simple cystic contents are quickly taken up by the absorbents, and the remaining shell undergoes rapid atrophy.

Palliative treatment consists in measures intended to effect

the absorption or arrest the advance in growth. A well adjusted bandage seems not only to give comfort and support, but also to favour their diminution in size.

I have never seen any benefit derived from massage or electricity. When they do seem to yield to these agents, I think it is through psychological effects rather than any direct specific action, as it is well known that many varieties of emotion or sudden mental impression will often exercise a most marked influence on every variety of neoplastic growth.

When it becomes imperative to remove a simple, barren cyst by surgical operation, we may proceed in one of two methods. One contemplates the puncturing and draining of the sac, with its irrigation and the destruction of its secreting cells, by the action of an agent acting locally. This may be designated the conservative or partial operation. The other is the more radical and bloody. It embraces the exposure, detachment, and total extirpation of the capsule.

The former method, in a general way, is by all odds the most desirable. By it, in the vast majority of cases, we succeed in effecting a rapid and permanent cure. The simple puncture and evacuation are not attended with the besetting difficulties and dangers which accompany the total excision, even in the hands of the adept. No general anaesthesia is needed; the local, analgesic action of the spray from a syphon of Vichy, or of the ether spray, is all that is necessary when we wish the avoidance of cocaine impression on the reflexes. When no serious obstacle lies in the way, this very simple expedient should commend itself to us for very many reasons, which are only necessary to mention. Among the most prominent, we may take the dispensing with assistants, which is no small item with the poor; the avoidance of an extensive mutilation or shock; and, besides, the escape from the serious lethal effects which may follow the administration of a general anaesthetic in one who suffers from organic disease. No instrument is needed, under ordinary circumstances, except a few perforated needles of various sizes, and a good double-injecting syringe.

There are, however, a few things, formerly observed as trifling details, if ever noticed at all, which now must be regarded in the most minute detail: I refer to the preparation of the hands, instruments, and the field of operation.

As has already been stated, these cysts are of a low organisation, composed of primitive, simple elements, so that when their integrity is in any way rudely disturbed, they often suddenly disappear. Hence, the reasons why some authors have found rupture of the cyst wall by a sharp blow, when of medium size, very often effectual, and permanent in its results. (Velpeau, Leçons sur les Kystes, Chirurg. Vol. IV, p. 300.) I can see no harm in even bringing moderate power to bear on intra-abdominal serous cysts, and rupturing them by judiciously applied force. Judging *a priori*, to me there seems no valid reason why this disorganisation of the tumor should involve any danger whatever.

When we proceed to attack a tumor by simple puncture, we have two main objects in view,—to drain away its contents, and to obliterate the capsule by inflammation and absorption. The simple emptying alone I have found in many cases to be all that was necessary. It is important, nevertheless, to leave a free vent, as the presence of any remnant of the fluid seems to act as a stimulus, and invites a relapse.

When the cyst is an old one, or when it refills, we must, after evacuating, inject the sac with some antiseptic, irritating material, which will chemically unite with the protoplasm and induce adhesive inflammation. Nothing is more efficient for this purpose than mercuric sublimate, in proportion of one to two thousand, injected after the sac has been well drenched with sterilised water and thoroughly drained. An objection to it is, that now and again we may salivate our patient: hence the reason that many prefer thymol, which is equally efficient, and is devoid of toxic properties.

I have had such happy results with the simple treatment outlined above, that I feel justified in recommending its

adoption in the treatment of the vast majority of cases of simple cysts, whether situated near the surface or deeply.

Should we have a suspicion that the growth lay beneath, or so closely to an important structure as to make direct puncture dangerous, we may divide the superimposed parts with the scalpel, and not thrust in the trocar till the bare cyst-wall comes into view.

When the contents of the capsule have undergone myxomatous changes, or when it is presumed that the neoplasm may be readily dislodged, either from its pedicle or the parts with which it has fused, we essay its complete removal by an abdominal section, as a preliminary procedure.

If no adhesions have formed, and the growth is of but moderate size, there will be little loss of blood, and its removal is simple and rapid. But when there has been much antecedent inflammation, and the investing envelope assumes an irregular contour, contracting adhesions as it insinuates itself into the irregular spaces of the abdominal or pelvic cavity, the peeling off of the parietal layer, without considerable haemorrhage and danger of laceration or rupture of parts which must be invaded, is very tedious and difficult, and may entail such shock that the patient never wholly rallies from the operation. Indeed, not infrequently its entire removal is an impossibility. Under these circumstances we may open through the tumor, drain or scoop out its contents, and cut away with the scissors all that part of the sac within reach, staunch the haemorrhage, flush the peritoneal cavity, and drain, or not, according to requirements.

These intra-abdominal operations for the extirpation of cysts should not be undertaken until full preparation has been made in the way of ample supplies of every description. At least three assistants will be necessary. Every step demands our most assiduous attention, for we must remember that in opening the cavity of the peritoneum the ultimate results will often depend on the observance of the most apparently unimportant and trivial detail.

Much depends on the time consumed in operating, and the

extent of the incision made. Air can enter in the peritoneal cavity, but we cannot get it out; and the longer the viscera are uncovered, and the greater their area exposed to atmospheric influence, proportionally great is the shock.

It is indisputable, then, that the radical operation must always be regarded as an extreme measure. We know that most distressing sequelae may follow the bruising to which the parts are often necessarily subjected,—the adhesions, intestinal obstruction, hernia, or impaired functional power of those organs or structures whose full and free action is so indispensable to the enjoyment of health.

THE TREATMENT OF CYSTIC FORMATIONS.

Cystic formations proper, the retention cysts of Virchow, are managed on the same general principles as ordinary cysts. Some of them admit of palliative measures only, which entail but trifling dangers to life; while others, a small minority, may be permanently disposed of by a radical course, which, however, contemplates the complete extirpation of a physiological structure.

Probably the most frequent and fatal variety of retention cysts within the abdomen is that connected with the kidney, and known as hydronephrosis,—literally, dropsy of the kidney, but clinically understood to designate an obstruction to the flow of urine, attributable to an impediment in the ureter. Pyonephrosis does not depend on the same aetiological factors: hence, if it were described as what it really is, as a renal abscess, it would convey a clearer and more accurate idea. The object in view in the surgical management of hydronephrosis is to remove the obstruction and empty the accumulation by way of the ureter,—to drain it through an aperture externally, or go to the fountain head and lift the kidney itself out of the body.

Owing to the rapid infection of the wound after opening into a distended renal capsule, before the days of antiseptics, the mortality was so great, even in the hands of the most

experienced operators, that any intervention involving mutilation was discouraged, and hence the majority who were so afflicted died unrelieved.

Since the time of Listerism, or aseptic surgery, there is no organ of the body on which modern surgery has had a more salutary influence than the kidney; and to-day thousands are saved who but recently must have perished unrelieved.

The conservative or palliative treatment of hydronephrosis consists in drawing off the urine through an aspirator, with a view of relieving tension.

With a man under my care six years ago, who was struck with violent force by the fly-beam of a derrick, in the right groin, his urine diminished fully half in quantity, and almost immediately a painful fulness appeared forward, over the right iliac plate. I punctured it on four successive days, drawing away from a pint of urine on the first day to a quarter of the quantity the last time. He made a good recovery. I cite this as an instance of temporary obstruction of the urinary duct, probably from a blood-clot.

The next means of relief consists in making an incision from behind (nephrotomy), and carrying the urine externally. I am acquainted with no instance where permanent success has attended efforts directed towards sending the urine into an intestine. The last and most radical of all measures involves the total removal of the kidney—nephrectomy.

The latter is undertaken as a primary operation when the sac, urine, and gland are all swept away at once. As a secondary measure, it is performed when, sometimes, after nephrotomy we are confident that little secreting substance remains, and that the other kidney is competent to do the work of elimination.

The choice of operation, then, when choice is permitted, lies between nephrotomy and nephrectomy. The latter may be a procedure of selection, while the former is one of necessity.

In order to reach an approximate estimation of the rela-

tive dangers of each in the pre-antiseptic times and since, I will quote, in abstract, from an able brochure by M. Jeannel, of the Toulouse School of Medicine, published in the *Gazette Hebdomidaire*, July 19, 1890. Of secondary nephrectomy he says,—

> It is less easy of execution, and attended with greater danger to life than when the primary operation was done under proper conditions; in any event, in the secondary operation there is less space to manipulate in. The large, empty, hydronephrotic pocket, suppurating, irritating, contracted, and firmly bound to neighbouring organs, is much more difficult of management than when the kidney, supra-renals, sac, and all are detached at once.

He insists on the danger of a hydronephrosis becoming a pyonephrosis through contamination; and he cites the reported cases in the hands of Nicaisse, Brodeur, Le Dentu, Kaufman, Braum, and Roemer, in which, in spite of rigourous antisepsis, nephrotomies (primary) were followed by suppuration and death.

Quoting from Guyon (Annales des Maladies des Organes Genito-Urinaires), he gives the mortality in primary operations as thirty per cent., in secondary, ten per cent.; though, however, he asserts with emphasis that with the manual of operation more precise, and the patient in a fair condition, it is always the safest to do the complete operation in two stages,—the first being a nephrotomy, and the second, nephrectomy.

Messrs. Jeannel and Brodeur together performed eighteen nephrotomies, with no deaths; while of forty-four nephrectomies,—his own and others,—eleven died.

M. Jeannel, in concluding his monograph, calls attention to the causes of death in nephrectomies, which, he believes, were mostly preventable, and attributes them to either the technique of the operation or to the impropriety of performing it. Hence, he gives items as to causes of mortality with different operators.

Esmarch, Meadows, and Billroth each lost one from haem-

orrhage. Schletileg and Czerny, one each from absence of another kidney. Czerny, one from a tear of the peritoneum and colon. Verneuil, one from an infection wound of the peritoneum. Watson and Goodell lost one each from unknown causes.

Now, while it is clear that those operations embracing the evulsion of a urinary cyst are practical and of utility, yet there are often insurmountable difficulties in the way.

The safest, least injurious, and most practical route to the kidney is by way of the lumbar incision. With the last rib resected, reasonable space is afforded to manipulate without entering the peritoneal cavity. As the general peritoneum has not been divided, the prospect of hernia following is not great. Being then on the border-land, and yet not within the serous sac, the operator is not annoyed by protruding viscera, and can hence proceed with rapidity. The record of one of our own countrymen in these renal operations made posteriorly should not be overlooked, for his success is so far unparalleled.

Dr. George D. Hamilton, of Columbus, O., has, within the past year, performed successfully five renal operations on patients of different ages—two nephrectomies, two nephrotomies, and one nephropexy.

The operation of nephrotomy is performed by making an oblique incision over where the kidney normally is placed. When the muscular parts are divided, and the loose fat in the way of the kidney is pushed aside, the distended outer capsule, with the pelvis is seized with the thumb and the fingers and herniated into the wound. After all haemorrhage is controlled and the wound well cleansed, a puncture is made into the hydronephrotic pocket and the urine allowed to escape. Now, if the sac is not adherent, its redundant, flabby, collapsed walls may be gently drawn through the incision and cut away, when its margins may be sutured to the integument. By most rigid antisepsis henceforth, and proper care, septic infection will be prevented and the fistula kept open. Great care must be taken here in making the

deep incision, not to mistake the lumbar fascia for the cystic covering and open the peritoneal cavity; or, if the parietal peritoneum has taken on adhesions with the bowel, and we divide it, a gush of faeces will besmear everything, greatly complicating and protracting the operation. Accordingly, we must grope about, feeling our way with the greatest caution, and using the scalpel but sparingly, until we are positive that we will make no mistake.

The final and entire removal of the cause of hydronephrosis may entail the ablation of the kidney. This is done by incision, similar to the one adopted for drainage. When it is felt and secured, it is decorticated, the vessels secured en masse, or separately. After the secretory structure has been removed, the shell is secured in the wound by a few cat-gut sutures. Now the chasm is well packed, and the incision is gradually closed by a granulation process. Encysted renal pus is evacuated, its exciting cause sought for as a calculous or other foreign substance, and the wound treated openly.

Hepatic cysts, whether serous, purulent, or hydatid, are not so safely remediable as those of renal origin. The liver having but one common terminal duct, and being a solitary organ, total arrest of function in it may be quickly mortal: hence, though the route to it were of easy access, yet, nevertheless, when the pathological conditions involve the gall bladder or the ducts, operative measures must be little more than temporising expedients in the majority of cases. From an anatomical stand-point we can understand the difficulties which lie in the way. Unless there has been plastic inflammation, a previous localised peritonitis, we must open the peritoneal cavity to expose the gall bladder or the free surface of the liver.

Happily, however, if the distention is either hydatid or serous, it may be drained away in precisely the same manner as those heretofore described. Although there may be severe leakage through the puncture into the peritoneal cavity, this usually will not cause serious constitutional disturbance.

With purulent accumulations and cystic formations we must proceed with caution, and divide the operation into two stages, or more, if necessary. To drain away a phlegmon lodged deeply beneath the capsule of Glisson, infection of the peritoneum must be avoided or all is lost. We accordingly commence by making an aseptic incision into the abdominal wall, immediately over the most prominent fulness, opening down until the parietal peritoneum is divided, when the gap is stuffed with gauze and covered by a firm bandage. In a few days, usually about three, the packing is removed, when adhesions are found to have formed, and the abscess may be opened and drained without danger of peritoneal infection.

In cholecystotomy, in the absence of recent or ancient adhesions, we practically adopt the same plan. When the gall duct has permanently closed and an effort is made to drain into the intestine, an operation known as cholecystenterostomy is done. I have never performed it, or ever seen one who survived it. Any one familiar with the many adhesions which form in the vicinity of the common bile duct, with the altered, indurated, or softened state of the tissues in chronic cystic disease, can readily appreciate the difficulties in the way. Added to this, even though a connection were practicable, the loss of blood, or the laying bare of the parts, is only too frequently followed by mortal collapse.

I would warn against the propriety of ever making an exploratory incision in any case wherein it is proposed to do an operation on the hepatic tissues, as it is liable to be followed by a shock, and it exposes the patient to a needless danger. So that when it is proposed to inspect the parts by laying open the abdominal cavity, we should have everything in readiness to go rapidly through such an operation as the condition of things may require.

CONCLUSIONS.

From the foregoing, it is evident that with the revelations of the microscope, and intelligent study of the histological elements and the pathological changes in serous cysts, a sound knowledge of them has become possible.

By the aid of anaesthesia and germ-destroying agents, their treatment has undergone vast changes; and now that sepsis and pain are avoided in dealing with them, few can wholly elude the efforts of the practitioner in his attempts to dislodge them.

My aim here has been to reawaken attention to the importance of the study of this very interesting class of pathological formations.

Of course no attempt has been made in the way of an analytical or minute study; for any one desirous of pursuing the examination of the subject in all its details will find numerous and convenient treatises on the subject.

My views here expressed are not based on speculation and theory alone, for I have had considerable practical experience in dealing with this class of neoplasmata. We have truly made stupendous progress, but yet all operations involving the abdomen are not without danger. Even explorations entail mutilation: hence, conservatism should be the word, and procedures involving much loss of blood should be undertaken only as a dernier ressort.

But when the time arrives, however, that we must act, we should proceed only when we have thoroughly qualified ourselves by study, experiment, and practice, and when we are fortified with a consciousness of a comprehensive knowledge of all the difficulties and accidents which may lie before us. Then, should the case end in disaster, we are easy in mind, and know that failure was attributable to influences beyond our power either to modify or to prevent.

SOME FUNCTIONAL DISEASES OF THE NERVOUS SYSTEM OF WOMEN, WITH A CONSIDERATION OF THEIR PATHOLOGY.

By T. J. McGillicuddy, M. D., of New York County.

October 24, 1890.

Under the above heading may be classified a number of diseases which, although not entirely restricted to women, are found much more frequently in the female than the male sex. Such a list would probably have, amongst others, the following:

The Hystero-Neuroses,

including { Gastric, Glandular, Cardiac, Bronchial, Pharyngeal, Spinal, Cerebral, Ophthalmic, Dermal.

Hystero-Epilepsy.
Hystero-Catalepsy, or Cataleptoid State.
Trance.
Lethargy.
Narcolepsy.
Ecstasy.
Migraine.
Hysterical Hypnotism.
Somnambulism.
Recurrent Orgasms.

A knowledge of the different hystero-neuroses is extremely important, otherwise the wrong organ will often get the ben-

efit of the medication. Dr. George J. Englemann has given them special study in an elaborate article in the *Gynaecological Transactions* for 1887, and Dr. H. J. Boldt has described the "Cardiac neuroses in connection with Ovarian and Uterine Disease," in an interesting article in the *American Journal of Obstetrics* for August, 1886. The frequency of hystero-neuroses may be judged when Dr. Englemann states that he has observed, since writing his first paper in 1877, over a thousand cases in private practice of the menstrual hystero-neurosis of the stomach alone. In these cases there is undoubtedly local congestion dependent on reflex irritation. The globus hystericus is most assuredly in many instances a local congestion, as can be determined by placing the finger during its existence on the front of the throat just below the larnyx, and it will be found very tender to the slightest pressure.

HYSTERO-EPILEPSY.

Hystero-epilepsy, according to Charcot and Richer, is only hysteria in the highest degree, and not hysteria complicated with other neuroses. Although hysteria in the male is not an extremely rare occurrence, still it is so frequent among females that it is the characteristic disease of that sex. I have seen one case of hystero-epilepsy in a lad, which came on from a fall and a great fright; and there are many physicians who have seen cases where the male patient imagines, or learns for the first time, that he has some fatal disease, or where, after some great physical or moral shock, he becomes as hysterical as a woman.

In hystero-epilepsy there is the hysterically nervous constitution combined with the depressing effects of anaemia, prolonged anxiety, mental shock or excitement, and the stimulus of uterine and ovarian disturbance starting up the hysteric aura. In about all the functional diseases of the nervous system of women, the general condition is the same,—the coördination and harmony of the cerebro-spinal and ganglionic nervous systems are sadly out of tune. It matters not

what pulls the patient down, whether it is an exhausting menorrhagia or great mental anxiety, the result is the same, and manifests itself often in these explosions of weakness.

The hystero-epileptic attack according to Richer is divided into four distinct periods.

1. The epileptoid period.
2. The period of contortions and great movements.
3. The period of emotional attitudes.
4. The period of delirium.

The epileptoid period has a tonic phase, a clonic phase, and a phase of resolution. Loss of consciousness was complete during the entire epileptoid period in the following cases, as is the rule, and all the attacks were more or less complete. In speaking of the rarity of this disease, which makes its study more interesting, Dr. S. Weir Mitchell writes "that in my experience, and it has been very great, these terrible cases are rare in America in any class of life, and most uncommon in the lower classes, among which Charcot seems to have found his worst and most interesting cases. In this disorder there is, I suspect, some difference between this country and Europe."

Dr. Charles K. Mills says that hystero-epilepsy of imperfectly developed or irregular type is a not uncommon affection in this country, but the disease in its regular type is comparatively rare. He has seen two cases. Dr. Allan McLane Hamilton also reports two cases. Hart and Barbour state that it is rare in Great Britain. They have seen one case in which it was present in a modified form. Many physicians that I have met, both in Paris and New York, seem to believe that hystero-epilepsy is a Parisian disease, and rarely if ever met with elsewhere. I see no reason to think that it is any less common here than in France; and it seems to me that physicians generally see these cases in their later stages, and after the most severe portion of the attack has passed away, and then simply consider it as minor hysteria and give it no thought. In the following twelve cases which have

occurred in my practice, I have taken especial notice of the uterus and the menstrual function, believing that the ovary alone is not the only pelvic factor in producing the disease, and in all of them, as in almost all previous cases reported, the uterus was diseased and menstruation abnormal. Dr. Charles Carroll Lee, in a short and valuable article on "The Relation of Peripheral Irritation to Diseases of the Womb and its Appendages," advises general as well as local treatment; "for in all these cases there is feebleness of tone, often waste of tissue and marked hydraemia, and a general tendency to nerve exhaustion." He also states that "It is a striking clinical fact that mal-conditions of the uterus exercise far more influence in this direction than disease of the tubes or ovaries, however pronounced the latter may be," and "that in neurotic conditions ablation of the uterine appendages is not only commonly useless, but often leaves the patient worse than she was before." Engelmann says "the uterus is more liable to influence the system and determine the nerve reflexes than the ovary." There is nothing to show that the ovarian pain may not be symptomatic of uterine disease, seeing that the latter is present in such a large proportion of cases, and the ovaries and uterus are really, so to speak, only different parts of a single organ, although often treated as if there was no connection between them.

Dr. Mills states as his conclusions,—

"In reference to oöphorectomy for hystero-epilepsy, or any form of grave hysteria: (1) It is rarely justifiable; (2) it is not justifiable in case of girls who have not menstruated; (3) when disease of the ovaries can be clearly made out by local objective signs, it is sometimes justifiable; (4) it is justifiable in some cases with violent nymphomania; (5) the operation is frequently performed without due consideration, and the statistics of the operation are peculiarly unreliable."

Most hystero-epileptics are easily hypnotised or already in a hypnotic state, and the arrest of the attack by what Charcot calls ovarian pressure is undoubtedly in many instances through hypnotic suggestion, as his application of the hand is

often very light and there is really no pressure to speak of. The ovarian pains are without doubt in many instances the sole cause of the attack. Charcot says,—

"Sometimes the pain is very severe, and the patients are unable to support the least touch, as the weight of the bed-clothes, etc. . . . Add to that a certain degree of swelling of the abdomen, and you have the clinical ensemble of false peritonitis—the spurious peritonitis of English physicians. . . . At other times, the pain is not spontaneously felt; we are obliged to search for it by pressure, and it is found in the ovary, which is tumefied, and often the size of an olive or small egg. At this moment you can provoke the pain, which reveals itself with specific characters. It is not a common pain, but a complex sensation accompanied by either the whole or a part of the phenomena of the aura hysterica, the same as they produce themselves at the approach of a crisis, and this provoked sensation is recognised by the patients because they have felt it a hundred times. . . . We have provoked painful radiations towards the epigastrium, complicated sometimes with nausea and vomiting; then, if the pressure is continued, soon come palpitations of the heart, with extreme frequency of the pulse, and at last it develops itself at the neck in the globus hystericus. . . . Certain cephalic troubles are evidently only the continuation of the same series of phenomena. Such are (if we speak, for example, of compression of the left ovary) intense whistlings in the left ear which the patients compare to the strident whistle of a locomotive, a sensation of blows struck with a hammer on the left temporal region, and, finally, a blurring of vision marked especially in the left eye. The same phenomena would show themselves on the corresponding parts of the right side in case the compression should be made on the right ovary."

Case I.	Mrs. R.	Age 26	Divorced; nervous and anxious.	Right ovarian hyperaesthesia, severe pelvic inflammation right side, much delirium.	Dysmenorrhoea with cervical stenosis, resulting from criminal abortion.
Case II.	Mrs. B.	Age 44	Nervous and worried.	Right ovarian hyperaesthesia, much delirium.	Dysmenorrhoea, constant leucorrhoea, lacerated perineum, two abortions.
Case III.	Mrs. B.	Age 38	Divorced; worried and anxious.	Ovarian hyperaesthesia, bronchial hystero-neurosis.	Dysmenorrhoea, two or three abortions.
Case IV.	Mrs. N.	Age 42	Divorced; nervous and worried.	Ovarian hyperaesthesia, both sides, somnambulism.	Dysmenorrhoea, five abortions.
Case V.	Mrs. B.	Age 24	Nervous.	Ovarian hyperaesthesia. Period of delirium predominating.	Dysmenorrhoea, sudden suppression of menses, two criminal abortions, endocervicitis.
Case VI.	Mrs. S.	Age 30	Widow; overworked and anxious.	Ovarian hyperaesthesia, never pregnant.	Severe menorrhagia.
Case VII.	Mrs. R.	Age 23	Overworked and nervous; malaria.	Left ovarian hyperaesthesia, hystero-cataleptic or trance state.	Dysmenorrhoea, slight flow, constant leucorrhoea.
Case VIII.	Miss B.	Age 21	Much anxiety and abuse; malaria.	Hystero-cataleptic and ecstatic, left ovarian hyperaesthesia, cutaneous anaesthesia and analgesia, amblyopia left eye.	Dysmenorrhoea, scanty and irregular menstruation, continuous leucorrhoea.

CASE IX.	Miss S.	Age 18	Overworked and nervous.	Ovarian hyperaesthesia, much delirium.	Dysmenorrhoea, flow slight and irregular.
CASE X.	Mrs. S.	Age 27	Nervous and anxious.	Left ovarian hyperaesthesia, much delirium.	Dysmenorrhoea, flow slight, endometritis, constant leucorrhoea.
CASE XI.	Mrs. L.	Age 32	Nervous and anxious.	Ovarian hyperaesthesia, trance or cataleptoid state, hysterical trismus, amblyopia.	Dysmenorrhoea, endometritis, perimetritis, two criminal abortions.
	Mrs. P. (coloured)	Age 36	Anxiety; husband away from home for months as a head-waiter at hotels.	Ovarian hyperaesthesia.	Lacerated cervix, constant leucorrhoea, dysmenorrhoea.

HAUT MAL.—TRUE EPILEPSY WITH OVARIAN AURA.

THE FOLLOWING ARE FOR CONTRAST WITH THE HYSTERO-EPILEPTIC CASES ABOVE.

	Mrs. L. R.	Age 45	Not nervous, haut mal.	Ovarian aura at menstruation.	No hysteria.
	Mrs. L.	Age 33	Ditto.	Ditto.	Ditto.
CASE XII.	Mrs. C.	Age 22	Ditto.	Ovarian aura before menstruation	Ditto.
	Miss M.	Age 30	Ditto.	Ditto.	Ditto.

CONVULSIONS WITH DYSMENORRHOEA, NEITHER HYSTERICAL NOR EPILEPTIC.

CASE XIII.	Miss B. S.	Age 37	Not nervous or anxious.	Convulsions, general, not very severe.	Endometritis, oöphoritis.

CASE I.—Hystero-Epilepsy: Right Ovarian Hyperaesthesia, much delirium, severe pelvic inflammation, dysmenorrhoea with cervical stenosis, resulting from criminal abortion.

Mrs. R., aged 26, blonde, divorced. First seen in January, 1885. She suffers much mental distress on account of separation from her husband. Has been ill for two years with dysmenorrhoea dating from a criminal abortion. Was under treatment in the country, and her physician told her that she had a small tumor of the right ovary, and also a pelvic abscess. On examination, I find marked stenosis of the cervical canal, a half inch from the external os, with great tenderness on the right side of the uterus. When I first saw this patient, she was in the second period of the attack,—that of contortions and great movements, with marked opisthotonos. While pressing over the region of the right ovary to inhibit the attack, she screamed for me to press. The nurse and myself pressed with all our strength, but it did not seem to give her much, if any, relief from the terrible pain. During the period of delirium, she has the hallucination that she sees her husband, and begs and entreats him to come to her (repeating constantly, "Oh, come, George, do come!" and finally crying out in the deepest anguish, "Oh, George, why do you not come?"), the expression on her face indicating the emotion of piteous supplication. She had hemi-anaesthesia, but not quite complete, of the right side, with a feeling of numbness and severe pain at times from the knee to above the hip; right hand and foot cold, with partial hemiplegia; complained of great and constant pain in the top of the head. She expressed it "as if the crown was raised up, and came down with a crash." After the attack, there is constant throbbing and cutting pains in the pelvic abdomen, and over the region of the right ovary there is tenderness. She feels at times feverish, and again cold, with clammy perspirations. There is spinal tenderness from the level of the angles of the scapulae to the sacrum, and she has throbbings and twitchings through the whole right side, even to the fingers and toes. The right arm aches, and there is numbness in the right side all the time. No trouble on the left side, except pain over the region of the heart after a deep inspiration. Appetite poor, tongue heavily coated, and breath foetid. I gave her bromide of potassium and the elixir of the valerianate of ammonia in large doses, with injections of assafoetida during the attack, with no benefit. I afterwards made slight dilation of the cervical canal with a steel dilator, and applications of the Faradic current to the right side, without any improvement.

CASE II. — Hystero-Epilepsy: Right ovarian hyperaesthesia, much delirium, dysmenorrhoea, constant leucorrhoea, lacerated perineum, two abortions.

Mrs. B., age 44. Has had six children and two miscarriages. Has a

cousin who is a cataleptic. Ten years ago had a sunstroke, and "since then has been feeling miserable." Works hard, and is burdened with a shiftless husband, who causes her a great deal of anxiety. For a week before the attack, which always comes on just as the menstrual flow begins, there are prodromes,—has dull headaches, is irritable and nervous, has great thirst, and her feet feel icy cold. Two days before the menstrual period, her head feels queer. There is, also, palpitation of the heart. Has hallucinations, imagines that any object seen is of enormous size, as, for instance, a chair, and wonders if she could ever walk around it. During the attack has a dull, heavy pain in the right ovarian region and down the thighs, and a terrible pain at the base of the brain. During the stage of contractions, there is slight opisthotonos, and after the clonic grand movements her strength leaves her, she is completely exhausted, and drops into a deep sleep. There is partial consciousness during the stage of grand movements. She can tell that there "are people around her, and that something is moving:" in this stage, she casts herself all over the bed, and struggles frightfully. She has been under treatment by several physicians, and says the only thing which gives her the slightest relief is ordinary bottled soda-water. Is weak, and has leucorrhoea. On examination, I find the uterus tender, but of normal size and position. There is tenderness in both ovarian regions, greatest on the right side, and a cellulitic deposit behind the uterus. In some of her attacks, there is demoniacal fury; in one she drove her son and daughter from the house. Has endometritis and a lacerated perineum.

CASE III.—Hystero-Epilepsy: Ovarian hyperaesthesia, a bronchial hystero-neurosis, dysmenorrhoea, two or three abortions.

Mrs. B., divorced woman, age 38, has had five children and two abortions. Has had attacks since her second child was born, in 1878. During the labour, which was brought on at eight months by fright, all the pains "were in her head," and she was unconscious until after delivery. The attack comes on with the globus hystericus, followed by a sinking sensation and unconsciousness. I first saw this patient in February, 1885. She was taken with an attack at the dining-table from the excitement of an unpleasant interview with her sister. In the first or epileptoid stage, she stiffened in her chair with her extremities extended, thumbs flexed tightly on the palms of her hands, jaws firmly set, and eyes closed; clonic spasms succeeded, and were followed by the stage of resolution. Has spinal irritation from occiput to coccyx, and the least excitement brings on pain in the back of the head. Used to have "cramps" during menstruation, which was always profuse, lasting generally six to seven days. Just before menstruating, always has pains in the head, and "a real bad cough"—a bronchial hystero-neurosis. She is hysterical from the least excitement.

CASE IV. — HYSTERO-EPILEPSY: OVARIAN HYPERAESTHESIA BOTH SIDES, SOMNAMBULISM, DYSMENORRHOEA, FIVE ABORTIONS.

Mrs. N., age 42, a tall, robust brunette, divorced. Has had five children and five abortions; not pregnant since her last child, who is now 15 years old. All deliveries have been instrumental, from pelvic deformity. She says that with each of her last three labours she had an attack, and the child was born while she was unconscious. The last child was born while she was in the opisthotonic position. Her first attack was at the birth of her third child, it being a second confinement in twelve months: at this time, she was slight and very weak. The attack came on from extreme mental excitement and worry, caused by trouble with her husband. Has prodromes—consisting of faint feelings, her head feels queer, face gets flushed, and then she gradually becomes unconscious. The attack always comes on a day before menstruation, and on the second day of the terrible pain the pain leaves her when the flow appears, which is always profuse. She is always very much depressed and downhearted before and after the attack. Has broken some of her teeth in the tetanic contractions of the epileptoid period. Is always much prostrated after it, and remains in bed for a week. There are no hysterogenic zones or painful spots except over both ovarian regions. After the attack, has hallucinations, also achromatopsia and amblyopia. During some of the attacks has somnambulism, walks around the street in her night-clothes, and has to be led home.

CASE V.—HYSTERO-EPILEPSY: OVARIAN HYPERAESTHESIA, PERIOD OF DELIRIUM PREDOMINATING, DYSMENNORRHOEA, SUDDEN SUPPRESSION OF MENSES, ENDOCERVICITIS, TWO ABORTIONS.

Mrs. B., age 24, lively disposition, six years married. First menstruated at 14, has one child aged five years, has had two criminal abortions, the last three years ago, and since that time has had, at every third or fourth menstrual period, severe "cramps" in the epigastrium, and they grow worse each time. On July 4, 1887, the second day of her menstrual period, she caught cold by stepping with her bare feet on an oil-cloth, after getting out of bed. This arrested the menstrual flow, and at eleven o'clock P. M. the attack came on, with grinding of the teeth from the severe pain in the epigastrium, and with contractions of the muscles of the neck. There was wild delirium, it requiring three or four persons to hold her. In her demoniacal rage, she tore her clothes to rags, imagined she was on the elevated or cable roads, was snow-balling, or, the next moment, swimming in the surf. She fondled a pillow for her child, and rushed about the room, striking herself against objects with great force. I gave her one third of a grain of morphia by hypodermic injection, and she gradually became calm, recognised her surroundings, and

fell asleep. These attacks last nearly three hours. She was weak and exhausted for some days following. She was too sore and tender over the ovarian regions, particularly the right, to admit of any pressure. There was extreme pain in the epigastrium (which was swollen) and under the angles of both scapulae—cervical endometritis.

CASE VI.—Hystero-Epilepsy: Ovarian hyperaesthesia, never pregnant, over-worked and anxious, severe menorrhagia.

Mrs. D., widow, age 30, cousin of Case VIII; occupation dressmaker; a tall, well formed brunette, with a nervous manner. Has another cousin who is an epileptic. Five years ago had her first attack from mental excitement, while sitting in a warm room, followed by two more in rapid succession. Aug. 16, 1888, while in a drug store waiting for the medicine for Case VIII, had an attack from the excitement of seeing Miss B. in her paroxysms. It came on while sitting in a chair, and as consciousness returned, she remembered the clonic convulsive movements of her hands and right foot. The attack is preceded by heart palpitation and hysterical suffocation, and is immediately followed by unconsciousness. The different stages in this case are similar in every respect to those of her cousin's case. Her menses occur every two or three weeks, are painless and profuse, lasting seven to eight days. Complains of pain in the small of the back, bowels regular, passes large quantities of dark, heavy urine. Whenever she is excited, she is afraid of an attack. Her father had several attacks of very severe epistaxis, and finally died of cerebral haemorrhage. A brother has lately died of phthisis, and another, as well as herself, frequently has attacks of bronchitis.

CASE VII.—Hystero-Epilepsy: Left ovarian hyperaesthesia, trance or cataleptoid state, somnambulist, dysmenorrhoea, slight flow, constant leucorrhoea.

Mrs. R., age 23. First attack at 17, from fright. Has always worked hard. At 20, had an attack while inhaling gas for extraction of a tooth. She says one very warm day she had eighteen attacks, and that it required several to hold her. Is pregnant for the first time, and fright from the quickening gave her an attack. Her head has a tight, compressed feeling: there is no outcry, or frothing at the mouth: she falls and stiffens, or, if in a chair, slides to the floor feet first. Is opisthotonic during attack, consciousness lost for fifteen or twenty minutes, is then dizzy, and sometimes vomits. Often has prodromes for an hour before the attack, is hysterical, feels oppression of breathing, and headache at the vertex; at other times no notice is given. Heart palpitates on slightest exertion. When young, had severe leucorrhoea before menstruating, and pain in the small of the back. Is very weak, menstrual flow scanty, but has had vicarious flow from the nose. Seven years ago had "brain

fever," caused by overstudy and her mother's death, was four months in bed, and frequently delirious and maniacal. In the attack, during the period of delirium, she imagines others are trying to do her bodily harm. Is a somnambulist, but is generally detected immediately on rising or after a short walk. Is also hystero-cataleptic, this always occurring at night in bed; has a smothered sensation, and cannot answer or move when spoken to. Has had these cataleptic attacks nearly every night for a week. The pain is in the left ovarian region. Has malarial symptoms, chills, fever, perspirations, and drowsiness.

CASE VIII. — HYSTERO-EPILEPSY: HYSTERO-CATALEPTIC AND ECSTATIC, LEFT OVARIAN HYPERAESTHESIA, CUTANEOUS ANAESTHESIA AND ANALGESIA, AMBLYOPIA LEFT EYE, DYSMENORRHOEA, FLOW SCANTY AND IRREGULAR, LEUCORRHOEA CONTINUOUS AND SEVERE.

Miss B., age 21, tall, well nourished blonde. Parents dead,—father from cancer, mother from Bright's; living with her brothers, who abuse her, and are a source of constant anxiety. For a year has had pain and swelling over left ovary, pain being severe in character and of short duration. Her feet swell at instep at times. Urinates seldom, and small amount; has severe unilateral headaches, left side and left eye, every other day, and other malarial symptoms. Menstruation scanty, irregular, and painful. Her first attack was two weeks before I saw her. She falls, becomes unconscious, and convulsion follows. It comes on with sobbing, hysterical suffocation, and palpitation of the heart. There is a state of tonic contraction of the muscles, which is followed by opisthotonos. After a little, the right leg is thrown violently over the left in the air, and the stage of resolution gradually supervenes. She then lies in an exhausted condition, and finally goes into a heavy sleep. I saw this patient again the next day after another attack, and found her ecstatic in the position of 'crucifiement,' with eyes looking upward, in a condition of hystero-catalepsy. She was totally unconscious during the attack, her skin was cold and colourless, and her pulse weak. After her second attack, there was partial loss of sensation in her lower extremities. Her abdomen was very sensitive to pressure, and she was threatened with an attack when it was continued. Saw her two years after, had had no return, but she says ever since the attacks she is afraid of herself in horse cars. Leucorrhoea, severe and continuous.

CASE IX. — HYSTERO-EPILEPSY: OVARIAN HYPERAESTHESIA, MUCH DELIRIUM, DYSMENORRHOEA, FLOW SCANTY AND IRREGULAR.

Miss S., age 18, single, rather plump, emotional. Father died from phthisis; mother suffers with neuralgia, and is very melancholic. While visiting in the house of Case II, she was taken with an attack while sit-

ting in a chair. Her friends first noticed a peculiar expression on her face, and immediately after she was seized there was abdominal pain followed by the different phases of the hystero-epileptic attack. During the stage of delirium she screams piteously for her dead father to come and take her home. She slept all the next day, and while returning home that evening was taken with the seizure in the horse car, and carried unconscious to the sidewalk. The opisthotonic position in her case was most marked. Creeping sensations precede the attacks, and there is always occipital headache. There is also extreme constipation, sometimes lasting a week. She has had these attacks now for several months. The first was caused by fright, she being chased at night by a man. Menses scanty, with terrible dysmenorrhoeal pains, and only last a day and a half.

CASE X.—Hystero-Epilepsy: Left ovarian hyperaesthesia, much delirium, dysmenorrhoea, flow slight, endometritis, constant leucorrhoea.

Mrs. S., age 27, married five years, strongly built. Has had attacks of hystero-epilepsy for the past seven years, coming on at first from a fright. The first sensation is that of trembling. Her hands get cold, and there is dizziness or faintness, followed by unconsciousness until the period of contortions, when consciousness returns. During the attack assumes the opisthotonic position, and froths at the mouth, the froth being frequently tinged with blood. She says the severe abdominal pain is the cause of the attack, although other things may bring it on. She is excessively nervous and depressed after it. Headaches are generally at the vertex, at other times occipital; always nauseated after eating and on rising; voracious appetite; always constipated. Pain in left ovarian region. A cold drink always gives severe cutting pains in the hypogastrium. Menstruation lasts from one day and a half to two days, and pain comes in about a day after. Has much anxiety on account of worthless husband.

Examination.—At the internal os, on passage of the sound, there is great sensitiveness. Has constant leucorrhoea. Since treatment to the uterus and ovaries, the attacks are much less frequent and less severe. Finally, after a short time, the headaches left, her menses became normal, has now no pain, and was entirely cured.

CASE XI.—Hystero-Epilepsy: Ovarian hyperaesthesia, trance or cataleptoid state, hysterical trismus, amblyopia, dysmenorrhoea, endometritis, perimetritis, two criminal abortions.

Mrs. L., age 32, married ten years, one child, and two criminal abortions at six weeks. When a girl, had attacks which, from description,

were probably hystero-epileptic, and had dysmenorrhoea until she became pregnant. Has had two hystero-epileptic attacks during the past year. She also has nervous spells, when she grows cold, and there is a roaring and throbbing in the head and a blurring of the vision. It is not a fainting condition. She thinks she has warded off some of these nervous spells by her will power. Occasionally, in the afternoon, while taking a light sleep on the bed or sofa, this state comes on. She remains conscious, but cannot stir hand or foot; her hands and feet feel cold as ice. During this state she is "frightened, and prays for God's help to move." She has a sensation of shaking or quivering through every part of the body. Dreams a great deal at night. A short time ago consulted me for hysterical trismus; it passed away, and "went to the stomach," as she expressed it, when I was called, and had to give her a hypodermic injection for relief of the pain. Had hysterical lockjaw twice before, and her doctor said "it was the wisdom tooth that did n't have room to come through." Has chronic endometritis and perimetritis.

CASE XII.—Haut Mal: Menses always delayed, amblyopia, no hysterical symptoms, has an ovarian aura.

Mrs. C., age 22, married at 19, one child. First menstruated at 15, and it occurs generally every five or six weeks. First attack a year after marriage, and it occurred like the rest, while expecting her menses. At the time for regular menstruation, there comes a sensation of weight and heaviness in the hypogastrium, and while waiting for the flow to appear, which is always scanty, the blood seems to rush to her head on the slightest exertion, with a feeling as if her head would burst. The eyes are affected with a blurring of vision, and most of the pain is frontal. During the attack she grows pale, there is strabismus, aud the muscles of the face are contracted. In the last attack several teeth were broken. Her last menstruation was delayed twenty days. She has no hysterical symptoms whatever. As soon as the menstrual flow appears she feels all right.

CASE XIII.—Convulsions with dysmenorrhoea; neither hysteric nor epileptic.

Miss B. S., age 37. For fourteen years has had trouble at the menstrual period; menses first appeared at 18, and then stopped until 19; thinks it was never regular, and always slight in quantity, and lasting from one to two days. When 23 years old, while lifting a heavy tub, "felt something break inside," and has been ill ever since. She has pains of a very severe, cutting variety, in left ovarian region, very severe congestive and neuralgic occipito-basal and frontal headaches, with much swelling of the face and neck. These come on as menstruation stops, rarely before it, and are preceded by very severe shakings or convulsions.

She does not feel cold, neither is there any fever. Slight pressure over the left ovarian region gives a little relief, but severe pressure causes great pain, and increases the convulsive trembling. There is no loss of consciousness, and there are no hysterical manifestations. Has lately developed an asthmatic neurosis. When the attack skips one menstrual period, it comes with redoubled force the next time. Local treatment with boroglyceride tampon and hot-water irrigations always improve her condition. Bromide of potash and morphine injections help the headaches. Has tender and inflamed uterus.

TRANCE, LETHARGY, SOMNAMBULISM, CATALEPTOID STATE.

Trance, lethargy, somnambulism, and hystero-catalepsy are probably only modifications of the same state; lethargy and trance being often complicated with cataleptic phenomena, and the cataleptoid state can easily be impressed on either. Somnambulism often appears in the great hysterical attack, as one of its prominent features. Catalepsy in these cases is sometimes limited to the upper extremities, and to impress a cataleptoid state on a case of trance or lethargy the member should be held for a few seconds, when it generally becomes rigid, and then again by friction the catalepsy may be made to disappear. In all these conditions there is frequently great mental activity.

Richer divides lethargy into the following varieties:

1. Attacks of simple lethargy.
2. Attacks of lethargy with apparent death.
3. Attacks of complicated lethargy.

   (*a*) By contractions, partial or general.
   (*b*) Cataleptoid state.

Attacks of trance or lethargy with apparent death have been recorded by reputable writers, and there is but little doubt that some persons in this state have been buried alive. Trance may be defined as a state in which general motion and sensation are suspended, but some one or more of the special senses remain active. In this state there is probably local or general modification of the cerebral circulation.

The following contrast is made by Richer:

CATALEPSY.

The cataleptic state is general, affecting equally all the voluntary muscles.

The cataleptic state is developed instantly, the member keeps the position as soon as communicated.

Suppleness and lightness of the members.

No rigidity of the members.

The cataleptic state is in no manner influenced by superficial cutaneous excitations.

The cataleptic state is primitive.

CATALEPTOID STATE OF SOMNAMBULISM.

The cataleptoid state is partial.

The cataleptoid state comes gradually after superficial cutaneous excitation (passes, currents of air, blowing, etc.).

The members are always in a state of rigidity, of which the degree varies from waxen flexibility up to contracture.

The cataleptoid state ceases in the same manner with which it has been provoked,—that is to say, after superficial cutaneous excitations.

The cataleptoid state is secondary.

CASE XIV.	Miss M. C.	Age 26	Teacher, frail, nervous, malaria.	Attacks of lethargy and trance or cataleptoid state, hallucinations during attacks.	Cervix tender and eroded, very tender and enlarged ovaries.
CASE XV.	Miss A. G.	Age 20	Lace-maker, overworked.	Trance or cataleptoid state, ovarian hyperaesthesia.	Cervix eroded, dysmenorrhoea, leucorrhoea.
CASE XVI.	Miss L. L.	Age 18	Cigarette-maker, over-worked, very nervous.	Hystero-cataleptic, trance, ovarian hyperaesthesia.	Menorrhagia.
CASE XVII.	Miss M. N.	Age 26	Dress-maker, malaria, nervous.	Trance or cataleptoid state, spinal irritation.	Endometritis, retroflexion, leucorrhoea, menses never regular.
	Mrs. St.	Age 39	Housewife, nervous.	Trance or cataleptoid state.	Several uterine fibroids.
CASE XVIII.	Mrs. L.	Age 30	Widow, very nervous, hat-finisher, malaria.	Trance or cataleptoid state, ovarian hyperaesthesia, migraine, palpitations.	Lacerated cervix, granulations.
	Mrs. Z. R.	Age 18	Husband has disappeared, primipara, malaria.	Trance or cataleptoid state, comes on after malarial chills; since getting stronger, chills have disappeared.	Uterus extremely tender, endometritis.
	Mrs. R.	Age 23	Florist, overworked, very nervous, hystero-epileptic, malaria.	Trance or cataleptoid state, attacks at night, somnambulist.	Dysmenorrhoea, flow scanty, severe leucorrhoea.
	Mrs. L. D.	Age 32	Housewife, very nervous, hystero-epileptic.	Trance or cataleptoid state.	Dysmenorrhoea, endometritis, perimetritis.

CASE XIV.—LETHARGY: TRANCE, RECURRENT ORGASM DEPENDENT ON OÖPHORITIS, ENDOCERVICITIS, AND LEUCORRHOEA.

Miss M. C., teacher, age about 26, frail and very delicate. A few months previous to her first menses, which commenced at 14, this patient had her first attack, during which she could neither speak nor move, but was perfectly conscious. In 1873, had a severe attack of chills and fever, and has suffered from malaria more or less since. Has always been a heavy sleeper, and although she has done all she could to combat this drowsiness, it would overcome her no matter what position she would take. She has slept standing, sitting, and kneeling: her head during this time would seem a ton weight. In 1879, became very nervous, and for two or three months she slept from twelve to fourteen hours each day, and even then she still felt drowsy, but her head was much relieved. Part of the time she had a feeling as if an iron band was tightly pressing the crown of the head. Leucorrhoea then commenced, and has continued more or less since. In the summer of 1886 she was very weak, and afternoons while resting, and oftentimes before going to sleep at night, she would have the following sensations: At first, she would lose all power of feeling in the hands and feet, until gradually the whole body became numb; at the same time she had the hallucination that she was assuming immense proportions, each tooth seeming to expand, and she could feel the nerve of each separate one throbbing. Very often at this stage she would jump up in great fright, her heart beating violently, and the whole body trembling; at others, after a while she would fall into a heavy sleep. At other times, on awakening, she was conscious of all that happened around her, but was utterly unable to move or speak. She has recognised persons entering the room, heard what they said, and did her utmost to let them know she was awake, but could not move a voluntary muscle of her body. She has, at such times, often tried to move a finger, or a toe, or an eyelid, but could not succeed. She has sometimes been an hour trying to rouse herself out of this state, and when at last she succeeded, the efforts made would leave her very much exhausted, and bring on a severe palpitation of the heart. She had these attacks very often during the summer and fall of 1886, but was not seriously ill until December, when I first saw her. She was then very feeble, but under treatment improved very much. In April, 1887, she began to have recurrent orgasms, which occurred regularly ten days after menstruation, continuing daily for a week. These lasted until July, and caused a return of the cataleptoid state. On examination, the uterus was found tender and eroded, with tenderness and enlargement of both ovaries. She was given phosphorous pills, Fowler's solution in large doses, and fly blisters were applied over the ovarian region. Electricity (Faradic current) increased the number of orgasms. Fowler's sol. gave great improvement, and she now enjoys good health.

CASE XV. — Trance or cataleptoid state: Ovarian hyperaesthesia, cervix eroded, dysmenorrhoea, leucorrhoea.

Miss A. G., age 23. Has frontal headaches, which come on the third day before the menses, and during this time there is a sensation of coldness in the vertex, and the face feels cold; "her feet are never warm." Severe cramps come on with the menstrual flow, with pain in the left ovarian region and back. Has leucorrhoea, and, on examination, find the pelvic peritoneal plane very sensitive; cervix eroded. Is at times very hysterical. Has had an attack of severe pain in the epigastrium, during which she lost complete control of herself, and could neither speak nor move.

CASE XVI. — Hystero-Catalepsy: Trance, ovarian hyperaesthesia, menorrhagia.

Miss L. L., age 18. Father dead, mother a drunkard and quarrelsome. Jan. 10, 1888. Her first attack was six months ago from a fright, some one having placed a "stuffed man" in her bed. This attack lasted three hours, and was followed by slighter attacks. A month ago had another severe attack, has been very nervous, and is jealous of her lover. She has had a severe cold. At 2 P. M. to-day, went off into a "sort of faint," no twitchings nor convulsions. When I saw her, her pupils were contracted to pin-head size. She had general cutaneous anaesthesia, responding but slightly to severe tests. Pulse jerky and regular; limbs in a cataleptoid state; skin cold, and she looks like death. January 11, remains in the same state. Suddenly she gives a quick, sudden jerk, and both arms are thrown backward and extended, and she goes into an ecstatic state. During attack, has very marked internal strabismus, is cataleptoid. Later, I learned that bowels had been constipated for five days, and that she has pain in the back of the head and praecordial region. She has had dysmenorrhoea ever since the function of menstruation was established. During the last month has menstruated twice and very profusely. Ovarian hyperaesthesia, etc.

CASE XVII.—Trance or Cataleptoid State: Spinal irritation, globus hystericus, endometritis, leucorrhoea, retroflexion, menstruation never regular.

Miss M. N., single, age 26. Menstruated first at 20; at 17, had a discharge of thick, yellowish leucorrhoea, which continued a year and six months; was kept in bed for thirteen months by a physician "for supposed suppurating spinal disease, discharging by the vagina." Has a tender spine from the middle dorsal region to the coccyx, which was very marked at the time the physician kept her in bed. Had an attack, at the time when menses were appearing, of vicarious haemorrhage from the stomach. Menstruation never regular. Has pain in the temples, and

neuralgic headaches; skin sensitive. There is a bright flush on both malar bones, and the least excitement gives her an intense blush for a moment. Tongue coated white; pulse 100, strong and full; stomach swollen. Has pain in the left ovarian region, extending to the back. Since she was 18, has had attacks in which she was sleepless and frightened at night. The attacks came on, both when asleep and awake, with a sensation of compression in the brain, the face being at this time very red, and followed by a creeping sensation beginning at the toes and fingers and going to the head; then ensues a cataleptoid state. She could moan, but do nothing else—could stir neither hands nor feet. To-day, May 22, 1889, the globus hystericus "is one minute in the throat, and the next back again to the left ovarian region." Has cold, clammy feet and hands, and other malarial symptoms. Appetite poor, and is nauseated. On examination, I find endometritis and retroflexion.

CASE XVIII.—TRANCE OR CATALEPTOID STATE: OVARIAN HYPERAESTHESIA, MIGRAINE PALPITATIONS, LACERATED CERVIX, GRANULATIONS.

Mrs. L., widow, age 30. Her attack of hystero-cataleptoid state comes on from agonising pain in the ovarian region before menstruation; constantly nauseated; is very nervous. The attack lasts but a few minutes; she finds it impossible to move or speak, "is cold as ice," and sweats profusely. It is sometimes followed by extreme prostration. Has migraine. Examination reveals laceration of the cervix on left side, with granulations.

MIGRAINE.

Migraine is often dependent for its causation on uterine disease, but it would be absurd, as in all other functional nervous diseases of women, to give that as a sole cause.

CASE XIX.—Mrs. B. L., age 47, six children and two miscarriages. Has migraine, always on the third day of menstruation; also has night blindness. Pain in the hypogastrium, no leucorrhoea, pain also during menstruation in back and shoulder.

CASE XX.—Miss C., aged 25. Has had migraine and headaches for five or six years: these have been more frequent the last six months. Menstruation lasts over a week, and the flow is excessive. She has a thick, yellowish leucorrhoea, works hard sewing on furs with a machine, pulse weak, appetite poor.

MIGRAINE DEPENDENT ON UTERINE DISEASE.

Mrs. M., age 45, lacerated cervix, endometritis.
Mrs. L., age 30, endometritis.

Miss O. C., age 38, endometritis, left ovarian pain.
Mrs. Cr., age 20, endometritis after abortion.
Mrs. V., age 23, endometritis.
Mrs. B., age 23, endometritis, lacerated cervix.
Mrs. T., age 43, menopause.
Mrs. B., age 24, endometritis and perimetritis, leucorrhoea.
Miss C., age 25 (Case XX), menorrhagia, leucorrhoea.
Mrs. B. L., age 47 (Case XIX), dysmenorrhoea, occurs on third day; also has night blindness.
Miss N. B., age 24, dysmenorrhoea, inflammation left ovary.

CASE XXI.—Hysterical apnoea, from irritation of the pneumogastric nerve, and dependent on endometritis, and granular and cystic degeneration of the cervix. A bronchial hystero-neurosis.

Mrs. A. R., age 33, twelve years married, no children. May 7, 1889, was called after midnight to see this patient, who was thought to be dying, although she had had similar attacks before. Has deep, sighing respiration, alternating with fits of violent gagging aud nausea, and gasping for breath in the most agonising manner. During this frightful attack she threw herself all over the bed, and it looked, from her efforts to get air, as if she was really choking. There is partial anaesthesia of both upper extremities, while both lower extremities are hyperaesthetic. She feels very weak, and says the least thing "thrills all through her." Has a sinking sensation at the epigastrium and palpitation of the heart nearly every morning, with nausea. Is as tired and languid in the morning as if she had not slept; has anorexia and constipation alternating with diarrhoea. Menses regular, but very profuse. There is pain before and during the first day in the left ovarian region and small of back. On lifting anything heavy, has bearing-down sensations. Has had one or two miscarriages in the early months. At times is hysterical.

CASE XXII—Hysterical hemiplegia: Endometritis, leucorrhoea.

J. R., age 22, single. Had a sudden attack of hemiplegia two days before she consulted me. She has to work hard at housework, feels nervous, and is at times hysterical. The attack came on immediately after mental excitement, being accused of theft by her father. Has no appetite, menses last a week, are very profuse and watery; during the flow has severe pain in the left ovarian region, and feels quite weak after it. Has constant copious leucorrhoea. Examination shows endometritis, with a granular condition of the os.

CASE XXIII. — Recurrent sexual orgasms, from ovarian irritation.

Mrs. S., age 22, two children, no miscarriages, last pregnancy four months ago, did not nurse the baby, and it died from marasmus. Has been weak and nervous for the last five years. Has had within a short time four attacks of sexual orgasm, with considerable discharge. Bowels constipated. Has pain in the left ovarian region.

CASE XXIV.—Miss C. H., age 27, pale, large, strongly built. Has an orgasm three or four times some days. Uterus tender. Has a burning sensation in left ovarian region.

CASE XXV.—Mrs. A. R., age 36, widow. Married twelve years, widow for nine years, three children. Menses, first at 14, are irregular, every two or three weeks, duration five to eight days, flow profuse. Has some aching pain twenty-four hours before the flow and continuing through the first day. Leucorrhoea, slight but continuous. With the bearing-down pains has an orgasm. Does not masturbate or have connection; very sensitive about the internal genitals. Urinates every fifteen or twenty minutes. Bowels regular. Has lacerated cervix.

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DISCUSSION.

Dr. S. B. Wylie McLeod, of New York county, said that he had been much pleased with the paper, which presented much that was new in connection with the symptomology of these affections. He had been more particularly interested in the subject, as it reminded him of a remarkable case which had come under his observation some time ago. It was one of catalepsy, where there was complete anaesthesia of the lower limbs, a throwing back of the head, although not to the extent often seen in cases of opisthotonos; and, most interesting of all, the patient had that remarkable condition which is considered characteristic of catalepsy, in which the limbs remained in whatever position they were placed. In order to test the case crucially, both lower extremities were elevated to an angle of about thirty degrees, when it was found that they remained for a considerable time in this strange position without any support. They began to tremble at last, and fearing some harm might come to the patient, they were placed again horizontally. That was a feat which none of us could perform, and hence the speaker concluded that the case was really one of catalepsy. He had found that some of his medical friends had doubted the reality of this condition, and they did not seem to be convinced even upon hearing the description of this case. He knew of no explanation for this remarkable condition founded on any of the theories concerning the action of the brain, and, so far as he knew, it was peculiar to women. The late Dr. Parke used to tell his students to remember, whenever practising among women, that the uterus was *the* thing, and the woman was merely an attachment. The speaker thought that this was the only explanation of very many things which are observed in the treatment of the female sex.

He had recently read in the newspapers of a wonderful case of trance which occurred in Vienna, and in which the patient was buried while in this condition, and subsequently, when for some reason the body was exhumed, it was found that she had given birth to a child in the coffin. The newspapers seemed to be our only available source for certain kinds of information, and it was a pity that there was not some method, under the auspices of a medical society, by which such information could be properly verified.

He had never been able to separate and classify these conditions as had been done in this paper. He had often doubted whether there was any truth in these stories about people being buried alive, and he had several times gone on invitation to see various expedients which had been devised to prevent such a misfortune. He had known this subject to be the source of the greatest mental suffering to people who really were approaching their end. He desired very much to know what means we had of ascertaining the proportion of people who had been buried in this way. Such information would be particularly useful to the practical members of the profession.

MEMOIR OF WILLIAM P. BEMUS, M. D.

BY THOMAS D. STRONG, M. D., OF CHAUTAUQUA COUNTY.

Dr. William P. Bemus died September 19, 1890. He was born at Bemus Point, Chautauqua county, N. Y., October 4, 1827, the seventh of ten children of Charles Bemus, who, at the age of 14, came with his father, a pioneer, to Chautauqua county.

He studied medicine with Dr. Stranahan, of Warren, Pa., and graduated at Berkshire Medical College in 1847. Commencing practice at Ashville, in 1852 he removed to Jamestown where he remained in a continuous active practice till his death. He was a man of fine physique and unusual powers of endurance, so that he could carry a strain of body and mind without apparent wear.

Since 1852 the writer has known him well, meeting him in consultations and in our medical societies. His work was arduous in his own special sphere; and, as a consulting physician and surgeon, his visits extended over a large territory. It was always a luxury to see his noble form, his bright and joyous face, and in emergencies to feel that in him we had a wise and reliable support. His professional courtesy was of a high order, and any unprofessional conduct on the part of a medical man was to him a real grief. He was honestly and thoroughly an "old code" man, a member of the New York State Medical Association, the last annual meeting of which he attended. He was surgeon of the railroad, and had performed many of the capital operations, including abdominal surgery.

To an unusual degree did he have the affection and confidence of the families in his charge. His uniform cheerfulness, his manly character, his kind heart, and his medical competence, won for him the love of all.

For more than four years we have been intimately associated as members of the Jamestown Pension Board, where I have known him better and appreciated him more highly than ever before. From week to week I learned his honesty of purpose, his kindness, his frankness, his sharp discernment, and sound reasoning in tracing cause and effect in the obscure cases to be investigated.

For several years he had suffered from prostatic obstruction and bladder complications. Five years since he was obliged, for a few weeks, to leave his work on account of it. He so far recovered his health that he entered fully into his professional labors, and continued them until about three weeks before his death, when an acute kindling of the disease drove him to his home, and with much suffering terminated his life.

His funeral was largely attended, and especially so by medical men. All classes, rich and poor alike, mourned his loss. The whole city seemed in mourning.

As a citizen, he gave his influence and energies for the promotion of good things, and showed not less interest and ability than in his professional life.

His family, to whom comes the greatest loss, consists of his widow, his daughter, Mrs. Hatch, and Dr. Morris N. Bemus, his son, who since his graduation has been practising with his father. As was said by his rector, "In his home he was emphatically a gentleman, patient and tender and loving in all the circumstances of family life."

Dr. Bemus was a member of St. Luke's Protestant Episcopal church.

MEMOIR OF WILLIAM S. COOPER, M. D.

BY E. D. FERGUSON, M. D., OF RENSSELAER COUNTY.

Dr. William S. Cooper was born July 11, 1819, at Stane, a village in Scotland, midway between Edinburgh and Glasgow, and died at his home in Troy, N. Y., May 26, 1890.

Through facilities in the vicinity of his boyhood home he acquired a liberal education, and entered upon the study of medicine which he continued from 1836 to 1840, partly at the University of Edinburgh, and partly at the University of Glasgow.

It was quite common at the latter city for undergraduates in medicine to gain somewhat in experience, and at the same time to add to their financial resources, by acting as surgeons on whaling vessels. Dr. Cooper made two voyages into the Arctic seas in that capacity, and during the first voyage his vessel was crushed in an ice-pack and soon sank, leaving the crew with scanty protection and supplies on a floating field of ice, whence they were rescued after three days. The writer recalls with pleasure vivid descriptions given by the deceased of his experience as a castaway in that region of ice, as well as other tales of his Arctic expeditions, including an encounter with a polar bear, that turned upon the boat in which he with others was pursuing her and her cubs, and when, just as she seemed about to sink the boat, a fortunate shot from the young surgeon promptly killed the beast and saved the party.

Shipwreck seemed to be especially his lot, for in the summer of 1842 he sailed for America, and during a gale that was notable for the number of vessels destroyed, his ship went ashore at Hempstead Beach, L. I., but by good fortune the passengers and crew were rescued. He at once proceeded to Troy, and soon after selected that city as his field for work. He opened his office in the southern portion of the city at what is known as the "Iron Works," and was soon fully occupied with professional duties. As the certificate of the Glasgow School of Medicine was not a license to practice, he took a medical degree at the Albany Medical College. The varied diseases and accidents in the community where he was located gave him ample occupation and a wide range of experience. During the epidemics of cholera that visited the city, he was continually at his post,—in fact, the idea of fear when a duty was to be discharged was probably never entertained.

In the summer of 1862 he left his home, his family, and a lucrative practice, and entered the United States army as surgeon of the 125th Regiment N. Y. Vols., and served throughout the remaining period of

the war. No record of his service can be made that will convey a full idea of his devotion to duty and to the interests of the unfortunate sufferers who came under his care. He remained with his regiment throughout the war, and the affectionate regard in which he was held by the soldiers has been frequently shown to the writer in conversations with them.

It was the good fortune of the writer to have frequent opportunity for conversation with Dr. Cooper, and naturally reminiscences of army life were often given, and though the incidents would be related so as to avoid as far as possible any allusion to his own part in the drama, still it was evident that his work was not only well and conscientiously done, but was marked by a firm and fearless devotion to duty. This was illustrated in the story of his surgical work at Gettysburg, in which it only incidentally appeared that he continued the discharge of his duty though exposed to the enemy's fire for some time.

His service in the army induced, through repeated and protracted exposure to chill and dampness, myalgic trouble, from which he suffered during the remainder of his life, and which rendered him an invalid for two years preceding his death.

His devotion to his regimental duty was so sincere that he preferred to remain a regimental surgeon, and consequently he did not seek or accept a transfer to other official positions, aside from what might temporarily devolve upon him in acting as brigade surgeon in an emergency. After his return from the army he resumed private practice, which he continued until about two years before his death, only relinquishing it on account of physical disability.

The confidence of an entire community in the integrity of an individual is as great an honour as can be given, for a full and complete belief in uprightness in every particular is rarely accorded to any individual by all his neighbours, but it was the right and privilege of Dr. Cooper to be so esteemed by the community in which he lived.

He was mild and considerate of the views and feelings of others,—in brief, he had by nature as well as through a life-long practice the deportment of a gentleman. If he felt obliged to express a "righteous indignation," it was usually manifested by a withdrawal from the objectionable presence, or a masterly and dignified silence.

He was very genial in his social relations, and had a keen appreciation of the humourous episodes in life, while his close and thorough observation of men and things made him a very interesting conversationalist.

My own relations with him were such as gave me a thorough knowledge of his character and attainments, and I acquired a profound respect for his intellectual ability and his thorough sense of humour, as well as a personal affection for him, so that in his death I fully and deeply feel the loss of a friend. *Requiescat in pace.*

MEMOIR OF WILLIAM B. EAGER, M. D.

BY MILTON C. CONNER, M. D., OF ORANGE COUNTY.

After a prolonged life of activity and usefulness, our lamented friend and brother, Dr. William B. Eager, has passed beyond the toils of earthly existence. He was one of the original Fellows of this Association, having been always active in its progress, and alive to both its best interests and to those of the profession in general.

He was a native of Orange county, having been born at Neeley Town, December 11, 1824. He received his early education at Montgomery academy, and began the study of medicine in Searsville, Orange county, under the instruction of Dr. George Hunter, a man of excellent medical and surgical ability and of unbounded energy of character. Having become imbued with and encouraged by the example of his worthy preceptor, he entered the College of Physicians and Surgeons, New York, graduating therefrom in the year 1848. After graduation he established himself in practice in the city of New York, where he rapidly gained a position and reputation which rarely falls to the lot of the young surgeon in the metropolis.

He entered the army in 1862, where his faithful and humane surgery gained him many a warm friend and admirer. He was in the Red River campaign under General Banks, being attached to the 162d New York, 13th Corps. After serving three years his health failed, and he received an honourable discharge. For a long time thereafter, he was connected with the Board of Charities of New York city, in the capacity of chief-of-staff. He was also at one time on the visiting staff of Bellevue hospital, and in that connection rendered the hospital most excellent service.

While in New York he was a member of what was known as the "Old School Board," which consisted of two commissioners from each ward. His main work in the board of education was in connection with the normal school organisation, a system for the training of teachers. This he clearly saw was a necessity, and it has since proved to be such. At that time he visited, in company with Hon. C. E. North and others, the State of Massachusetts to examine its school system, and to report thereon to the governor of the State of New York. In this report we have a marked exhibition of Dr. Eager's argumentative power and logical acumen. As a result of his efforts the entire school laws of the State of New York were revised, and upon this foundation has developed our present system of public schools.

Excepting the time spent in the army, Dr. Eager practised in New

York from 1848 to 1874. At one time the doctor was the proprietor of a drug store, and from investments which had been carefully and skilfully made he found himself in the possession of a respectable competency.

In 1874, owing to severe and repeated attacks of rheumatism, he was compelled to relinquish his practice in New York and return to Middletown, where he subsequently resided until the time of his death. He continued in practice during such periods as his physical ailments would permit. In later years he suffered from cataract in both eyes, one of which was removed in 1887 by the late Dr. C. R. Agnew. This operation proving to be a success, he was enabled to increase his professional work to such an extent that the year 1889 was the best financially that he had had since locating in Middletown. This seemed to be a providential interference in favour of the grand old man; for financial losses in preceding years, due to an implicit trust placed in supposed friends, had deprived him of a large part of his hard-earned property.

He was an active member of St. Paul's M. E. church, and also connected with the Military Order of Soldiers' Legion, U. S. A., being a veteran of the 7th regiment, and past master of Atlantic Lodge, New York city. He was a member of the New York Pathological Society and of the American Gynaecological Society.

The doctor's writings were not numerous, but when he chose to report cases to or read papers before the several medical societies of which he was a member, they were always well received. He was passionately fond of music, and was a member of several musical societies. At the time of his death he was president of the Oratorio Society of Middletown, and ex-president of the Harmonica.

His ability to inspire a personal trust and faith in him on the part of his patients, was most wonderful, and amounted almost to personal magnetism. Fertility of resource in every branch of both medicine and surgery, and especially in gynaecology, made him the consultant most sought after throughout the section in which he lived.

It is my painful duty to announce to this Association that Dr. Eager died January 18, 1890, leaving an invalid wife and two widowed daughters to mourn his loss.

MEMOIR OF S. W. LESTER, M. D.

BY J. B. HARVIE, M. D., OF RENSSELAER COUNTY.

Dr. Sullivan Ward Lester was born August 18, 1849, at East Lynn, Conn., and took his degree in medicine from the University of the City of New York in 1881. He settled in Troy in the summer of the year of his graduation.

Dr. Lester was a close and careful observer of facts, and possessed positive ability for his chosen profession. He was untiring in his attention to the interests of those who intrusted themselves to his care, and as a consequence his circle of friends rapidly increased, and contained a large number of personal admirers. Among his acquaintances in the profession he was considered as thoroughly competent and reliable, while their personal regard for him was shown in sympathetic attentions during his last illness, which was protracted and at times productive of great suffering.

He died at Clarksburg, New Jersey, January 5, 1890. He is survived by his wife and a daughter.

MEMOIR OF LEWIS HALL SAYRE, M. D.

BY GLOVER C. ARNOLD, M. D., OF NEW YORK COUNTY.

Lewis Hall Sayre, born at the house of his grandfather, Charles Henry Hall, in Harlem (now a part of New York city), on September 12, 1851, was the second son of Eliza A. Hall and Dr. Lewis Abbot Sayre, so well known as an orthopaedic surgeon, not only in this country but abroad. His paternal grandfather was Archibald Sayre, a farmer of Bottle Hill, now Madison, Morris county, New Jersey. His great-grandfather, Ephraim Sayre, was a prominent and staunch patriot, who held the position of quartermaster in the Revolutionary War. His paternal grandmother, Martha Sayer (not Sayre and not related), was a native of Orange county, New York, and of Huguenot descent. On his mother's side, the original settler, John Hall, came over with Governor Bradford's colony, in 1630, from Coventry, Warwickshire, England, and settled at Yarmouth, Cape Cod. His son, John Hall, 2d, was succeeded by Joseph Hall, whose son, David, married Elizabeth, daughter of Jonathan Prescott of Concord. His son, Jonathan, who married Bathsheba Mumford, was Lewis H. Sayre's great-grandfather. His eldest son, Charles Henry Hall, was born in Pomfret, Conn., in 1781, and was the father of Eliza A. Hall.

Young Lewis was educated in New York city, first attending the Columbia grammar school, and later was sent to the 13th street public school, and in 1867 he entered the University of the City of New York, from which he was graduated in 1871 with the degree of Bachelor of Arts. Though frequently a spectator of surgical procedures, he early evinced a marked dislike for that branch of the profession, and shrank from witnessing any suffering. But when 19 years of age he involuntarily assisted his father in an operation while the patient was under chloroform anaesthesia, and being then convinced that the patient was insensible to pain, he seems to have changed his mind, and determined to follow the profession of medicine and surgery.

He entered the Bellevue Hospital Medical College in 1871, and commenced attending lectures; but his course of study was interrupted by an illness which lasted for two years. Previous to this he had always been in vigourous health, but from that time he never wholly regained his former strength. Later he resumed his studies, and completed his course in 1876, graduating from the Bellevue Hospital Medical College with the degree of M. D., and began practice in his father's office, continuing with him until his death.

In 1876 he was appointed assistant to the chair of Orthopaedic Surgery in the Bellevue Hospital Medical College.

While abroad, he was always a most able and expert aid in all of his father's demonstrations, and in 1877, his father being detained in London and unable to keep his appointments in Scotland, Dr. Lewis Hall Sayre lectured in his stead in the University of Glasgow for Dr. George H. B. McLeod, and also in the Royal Edinburgh Infirmary for Mr. Thomas Annandale, in both of which places he was warmly received.

On January 15, 1879, he was married to Alice Pomeroy, only daughter of William L. Pomeroy, of New York city.

In 1889 he was appointed surgeon to the Hackensack hospital in Hackensack, New Jersey, and in that same year was elected president of the Alumni Association of the Bellevue Hospital Medical College, and was in office when he died.

Dr. Sayre's first contribution to medical literature was his graduation thesis in 1876, on "Lumbar and Psoas Abscess." Among his other contributions were,—"The necessity of recognising reflex spasm produced by pressure in contractured tissues, and of making proper division of the same before mechanical treatment can be effectual"—*Virginia Medical Monthly*, October, 1886; "The treatment of abscesses connected with disease of the vertebrae by incision and thorough drainage"—Trans. Internat. Med. Congress, 1887.

Dr. Sayre was an active member of the New York County Medical Association, the New York State Medical Association, the New York Pathological Society, the New York Academy of Medicine, the New York Neurological Society, the American Medical Association, and the American Orthopaedical Association: to the last named he was at one time secretary.

He was of a most kind, sympathetic, and gentle nature, always bright and buoyant, qualifications which endeared him to those with whom he came in contact. His genial cheerfulness has been abundantly testified to by those to whom he had rendered professional service both in hospital and private practice. His attentive care of his patients was unvarying, and the kindly sympathy shown for their suffering was appreciated during his lifetime, and has been reiterated by innumerable expressions of sorrow from persons of all stations in life.

He died suddenly sometime during the night of January 2 and 3, 1890, and was found on a sofa, in a reception-room of his father's office, on the morning of January 3, having returned from a call during the night.

The interment was in the family vault in St. Andrew's church-yard, Harlem, New York city, the ground on which the church stands having been presented many years ago by his maternal grandfather.

He leaves surviving him his widow and three young children, the second boy being the namesake of Dr. Sayre's father.

MEMOIR OF GEORGE VARNUM SKIFF, M. D.

BY W. T. WHITE, M. D., OF NEW YORK COUNTY.

Dr. George Varnum Skiff, aged 52 years, died at his residence in this city, January 28, 1890, of malarial blood-poisoning, which was developed after a severe attack of influenza. He received his degree from the New York University Medical College in 1860, and served in the late war as assistant surgeon in the 12th Regiment N. Y. Volunteer Infantry, up to May 17, 1863, and on June 22, 1863, he was commissioned as surgeon of the 15th Regiment N. Y. Volunteer Cavalry, and mustered out in 1865.

His military service over, he came to this city, opened an office in Norfolk St., became identified with the Eastern Dispensary, and gradually worked his way to the West Side, where he became widely known. He was active in the organisation of the East River Medical Association, which afterwards became the New York Medical Union, but of late years was not a frequent attendant at any medical meeting.

He was a man of genial manners; industrious in his profession; a member of the "Thirteen Club;" a comrade of the Grand Army of the Republic; and a Freemason. He was unmarried, leaving his parents, a sister, and two brothers. His remains were interred the next day at his birth-place, Pike, Wyoming county, New York.

MEMOIR OF GEORGE SAMUEL SUTTON, M. D.

BY MR. A. B. SMITH.

Dr. George S. Sutton was born at Constable, Franklin county, State of New York, August 24, 1825. During his boyhood his parents removed their home to Louisville, St. Lawrence Co., N. Y.

In early life he gave promise of success by his industry and ardent attachment to his studies, which he pursued under many discouraging and untoward circumstances with gratifying success. In his early manhood he visited the opening gold fields of California, only to procure means to pursue successfully his chosen profession.

Thoroughness in culture and acuteness in perception were marked characteristics in his entire career. He pursued his medical studies with Dr. Joseph H. Ripley, a physician in large practice, in Massena, St. Lawrence county, N. Y. He married the daughter of Dr. Ripley.

He graduated at Castleton Medical College in Vermont in 1858, and in 1859 he graduated from the College of Physicians and Surgeons in New York city. He practised for a short time in the city of New York, and afterwards pursued his profession in Massena, N. Y.

In 1862 he went to Douglas hospital, Washington, as assistant surgeon. In April, 1863, he was promoted to surgeon and placed in charge of Emory hospital. Soon afterwards he was placed on Gen. Heintzelman's staff as medical director. He served as examining surgeon at Camp Convalescent, Va., when the Veteran Reserve Corps was organised.

From the Spring of 1864 to the Fall of 1865 he was in charge, first, of Augur hospital, near Camp Convalescent, which he thoroughly reorganised, and then of Point Lookout hospital. He was brevetted lieutenant colonel for his meritorious and successful service in various positions. He won the esteem and confidence of all with whom he came in contact by his quiet, unobtrusive, yet energetic and prompt, discharge of every duty. At the close of the war he settled as a physician and surgeon in East Fishkill, Dutchess county, N. Y., and speedily took rank among the ablest physicians of the county, and enjoyed a lucrative practice among a people most ardently attached to him. He was abreast with his profession in all its wonderful progress.

He died at East Fishkill, N. Y., September 6, 1888, in the 64th year of his age, and was honoured and loved by all who knew him.

MEMOIR OF ISAAC E. TAYLOR, M.D.

BY JOHN SHRADY, M.D., OF NEW YORK COUNTY.

Born April 25, 1812. Died October 30, 1889.

Said M. Augier, not long before his death,—"What a fine thing old age is, surrounded with care, attention, and respect. But what a pity that it lasts so short a time."

Years before this playwright, Dr. Samuel Johnson wrote, in almost the same strain,—

> An age that melts in unperceived decay,
> And glides in modest innocence away;
> Whose nights congratulating conscience cheers;
> The general favourite, as the general friend:
> Such age there is, and who would wish its end?

"Perhaps," said the Greek sage to the sorrowing relatives of a youth cut down in his prime, "he may have risen from the feast before he was yet drunk."

"Not so happy, yet much happier," was the consolation of the witch to Banquo, anxious concerning the succession. Macbeth reached the throne through crime and turmoil: Banquo became not a king, but did beget them. "Between these extremes of youthful hope and aged experience, how many lives have their span!"

The young lieutenant who touches his cap and meets his doom may have missed the glory of the war; but perchance darker clouds might have received the phantasm of a more ignoble future, if in the gallery of heroes he were destined to win only a vacant tablet, or a portrait turned to the wall. Then, too, there may be lives which, like a flimsy plot, are delayed by a tedious dialogue, full of platitudes and pretence, while still other lives sail on, carrying argosies safely to the end,—remembered more than blest, and yet withal grandly, nobly useful.

Of this last class was the career of Isaac E. Taylor, around whom so many gracious memories cluster; for was he not our "guide, philosopher, and friend"? Was he not "Of soul sincere, in action faithful, and in honour clear"? Was not his a self-poised, unshowy life of contented service to his kind, unmarked by that awe of distance inspired by Moses weighted with the tables of the law, but nearer to us in its sympathies, its struggles, and, last of all, in its modest triumphs? Was not his an every-day character to be found among the staunch common people of all races and diversities of opinion? Was he not as conscientious as gentle, as safe in counsel as tolerant in doctrine, and as erect in morals as in mien? With

more sagacity than selfishness, and with more wisdom than vainglory, was he not the staunchest loyalist in the "King's Own," a chevalier in the field, and a gentleman in the barracks? Could not those who knew him best say,—"Here was a life of not-over-greatness, blotched with many failures and bankrupt by many forfeits, but superbly symmetrical, doing with its might the handiest work without slight or murmur; a life which was more of a sonnet than an epic,—aye, a life the name of which, to the surprise of men, the Angel writes in his 'Book of Gold'"?

Dr. Isaac E. Taylor was one of eight children. His parents, William and Mary, good, homely English folk, came from Cambridge to Philadelphia in 1797, where he was born in a house once occupied by Washington. A boarding-school, as was the custom, followed in course, and then Rutgers college, with his name at last entered upon the catalogue as of the class of 1830. This sums up the history of his youth, barring a little episode which might have spoiled his future,—a suspension for playing billiards: but that was in the long ago, when lines in minor morals were strictly drawn.

During his "rustication" he circumvented his leisure by attending lectures on anatomy, chemistry, and midwifery,—it being the last course delivered by Drs. Physick and James, the latter a Professor of Obstetrics. Of this part of his experience he was wont to speak with affection and enthusiasm. Naturally enough, he thought that there were never such teachers as these, and thus it was that he never lost his reverence for medical Philadelphia, or the radiant memories of its home life.

At last a Bachelor of Arts, he wavered between law and medicine, but soon decided to enter the office of his brother, Dr. Othniel H. Taylor, originally of Camden, but at this time a flourishing practitioner of Philadelphia. In this latter city, during the appalling epidemic of 1832, he served as an assistant in one of the ten cholera hospitals, and two years afterwards was graduated a Doctor of Medicine from the University of Pennsylvania. All this at a time when cliniques were virtually unknown, when text-books were elementary, and all the appurtenances, as compared with those of to-day, of the most meagre type. His thesis was on "Haemoptysis," which, to fulfil the letter of the law, and in moments snatched from more important duties, he must have written in a perfunctory kind of way, as he more than once alluded to it with a gleeful chuckle.

Immediately after his marriage, in 1835, with Miss Eliza Mary, daughter of Stuart Mollen, a merchant of New York, he was persuaded by the latter to embark in business; but this venture being much against his tastes, he returned to medicine in 1839, during which year he decided upon New York as his future home: so he came to this city before its holiday of public virtue was yet past, and long before its commercial greatness began.

In 1840 he visited Paris, and entered the office of Cazeau. During his sojourn abroad, he travelled extensively and observed critically, without neglecting the hospital advantages of Paris and Dublin. Those who knew him intimately were not slow to admit that a sense of duty guided his every effort. His stay was certainly brief, but no man could have better improved it.

In 1841, on his return from Europe, he reassociated himself with the City, Eastern, Northern, and Demilt dispensaries as attending physician, having charge, in each, of the diseases of females. While serving in the first of these, he had a private class of four in each, and this was the origin of the gynaecological clinic in the United States. Henceforth his name was always prominent in public benefactions. If anything, his efforts were now redoubled, and his industry reïnvigorated.

Ever in contact with the public, Dr. Taylor had mingled with many types of men both within and without the profession, and had impressed them with his own individuality, but, above all, he never lost that rare candour of charging his failures to his own account. And yet in his successes he scorned to combine the herald with the hero; he relegated all dogmatism to the less informed, counting as naught the exaggerations of enthusiasts, and relying most of all upon the stern logic of facts. Unexasperated by failure and unspoiled by gratified ambition, he was the same resolute worker for the elevation of his kind, sincere in soul and jocund in spirit, more than half convinced that possibly he might be living in the Augustan age of medicine, and that perhaps even his name might gain a modicum of its lustre! His faith was certainly without despondency, and may we not hope that the future may proffer a few of its laurels to his memory?

As an educator familiar with the best minds in the field of his vocation, he steeled himself against irreverence for the past, conscious that "the wit of many had been before his own," and acquired a spirit of humility, to which was added a native gift of generalisation that flashed its light upon the many obscurities that beset the delver after truth. To him fantastic honours were as dross. His training by self-imposed tasks and persistent toil could not, I ween, have been better, nor his knowledge of obstacles more improved.

The story of Dr. Taylor's life is like unto that of most physicians—to the public uneventful, yet abounding in unappreciated acts of kindness. Many, doubtless, as in common with our class, may have called him blessed only in whispers, and many, too, may have assailed him with unjust rancour, but he was neither spoiled by the one nor balked by the other. His work was of the routine sort, though none the less worthy on account of the causes that called it forth. It may not have been characterised by the dramatic fervour of the coastman at a life-saving station, but it was marked by equal responsibilities, and often with a

more conspicuous judgment. His in no sense, therefore, could ever have been a bald biography: although much was not on the surface, still great was the wealth in the depths.

With him a sportive, piquant, quizzical humour, in which there lurked the wisdom of the sage, set off many a point, and lodged it in the mind forever. There was an exuberant raillery as well, but it was stingless. An old-school urbanity, suffusing every phase of circumstance, more than once stood him instead of the keenest satire, for with him a happy hit often served the purpose of a savage denunciation. With his good humour and indescribable charm of deportment, he simply tolerated what he could not admire. Honest in his dealings with the reputation of others, frank in controversy, setting down naught in malice, apologising with a genial smile for petty foibles, he might be said to have triumphed literally without gaining an enemy.

Thus, if he failed of the victor's crown, he likewise missed the martyr's. His may not have been the dancing plume of Henry of Navarre, but his was the javelin staff which kept in line Rome's Tenth Legion, for he was content to be with it and of it—only a unit in Rome's history and Rome's glory. He desired to be merely a part, not the all-in-all. Not allowing himself to be cloyed with the sweets of life, his industry kept him from temptation, and, had he been less of the philosopher, from ruin. Not anxious for notoriety, and untainted by the spirit of trade, he never had reason to regret the failure of the trivial arts which, beginning in deceit, end in disaster. He never posed before the public, for he coveted not a bizarre reputation: the honest coin of medical respect was recompense enough for him. Thus, if his name was not paraded, it certainly was never bedraggled. In this respect there could have been no self-abnegation, for there was no enticement. Of all things, he hated shams the most.

To him there came no visions of quiet villas by placid lakes, and a sumptuous hospitality to feed an empty vanity. He had higher aims: he chose the rugged road of philanthropy; he busied himself with the problems of medical education, imbued the young with an enthusiasm for their calling, and taught that old but ever true apothegm, that there could be no excellence without labour.

Although a desultory reader, he had a marvellous memory and the nimble faculty of pigeon-holing his facts. He studied subjects topically and with a scholarly zeal, keeping himself above what Lamb describes as "a placid state of little wonderments;"—he did more: he winnowed, tested, and weighed, so that nothing of value might be rejected. With gifts and methods such as these, what wonder that he became a diagnostician of exceptional accuracy!

Too earnest to be misled by prattle, he still did not play the cynic, but was ever ready to salute the truth and hail the coming man. Not always

honouring the vernacular, occasionally grandiloquent, sometimes obscure, but never untruthful, and without favourites save those who, like himself, measured their leaders before they suffered themselves to be led, he yet could answer sententiously, and hold his own in debate. As a teacher not quite up to the grade of genius, he was both suggestive and amply equipped. He blazed many a path, and many now walk therein. Moreover, the mind of Dr. Taylor was cast in an aesthetic mould: he admired analogical law above aught else in science. He had the artistic sense as well, for the volumes of his library were marvels of taste in binding, and his own pamphlets were abundantly illustrated. A fine plate always delighted him, and he never begrudged one to his readers. No one could be at more pains to drape his nouns with adjectives, and no one would fight more vigourously for his text. His style, however, savoured too much of haste in writing, and, as always, there came of it an impatience of revision. His friends, indeed, were wont to accuse him of literary aspirations, but he would turn the discussion with a smile, by way of a half admission that the surmise might not have been without a foundation. As an instance of what he did in this direction, there is herewith appended a partial list of his contributions:

Report of cases peculiar to Females and Nervous Diseases, treated in the New York Dispensary, read before the New York Medical and Surgical Society in November, 1840, and published at the request of Dr. Alexander H. Stevens in the "New York Journal of Medicine and Surgery," Vol. IV, January, 1841. This paper was among the first which referred to the use of the speculum.

An edited volume of Dr. Emory Kennedy's Work on Auscultation, with numerous plates and notes, unfolding the views entertained by Stoltz and Cazeau concerning the cervix uteri, published in 1843.

Remarks on the use of "Liquor Hydriodate of Arsenic and Mercury in Cutaneous and Uterine Diseases," published in the "American Journal of Medical Science," April, 1843.

On Rheumatism of the Uterus and Ovaries, read before the New York Pathological Society, March 12, 1845, and published in the "Journal of Medical Sciences," July, 1845. Of this essay, he candidly admitted that it contained many crudities of thought, of which subsequent study had completely rid him.

Report of cases of Aphonia and Syphilitic Ulceration of the Larnyx, treated by the sponge probang with the solution of nitrate of silver, read before the New York Medical and Surgical Society in April, and published in the May number of the "New York Journal of Collateral Sciences," 1845. This paper brought about the appointment of a committee, which consisted of Drs. Gurdon Buck, John A. Sweet, and T. Campbell Stewart, charged with the duty of reporting on the propriety and feasibility of such a procedure.

Paper on Protrusion of the Eye, resulting from Rheumatic Inflammation of the Tunica Vaginalis Oculi, in "New York Medical Times," June, 1845.

Protrusion of the Eye, or Exophthalmus, and Enlargement of the Thyroid Gland as a sequence of Anaemia. "New York Medical Times," with a plate, December, 1852.

Syphilitic Mucous Tubercles and Secondary Syphilitic Affections of the Os Uteri; and Hereditary Transmissions. "New York Journal of Medicine," May, 1853, republished in several German journals, and read before the Society of Medical Inquiry, April, 1853.

Monograph on the Sunburnt Appearance of the Skin, as an Early Diagnostic Sign of the Suprarenal Capsule Disease. Published, with illustrations, in the "New York Journal of Medicine," September, 1856.

Remarks on a case of Regurgitation of the Stomach, successfully treated by the Inhalation of Chloroform. Published in the "New York Journal of Medicine," November, 1856.

Case of Labour with Anteversion of Uterus. Published in "New York Medical Times" for September, 1856.

Two Successful Cases of Recto-Vaginal Fistula, cured by a new operation. Published in "New York Medical Times," 1856.

Observations on the Non-Shortening of the Supra and Infra Vaginal Portion of the Cervix Uteri in the full term of Gestation. Read before the Academy of Medicine, and published, with illustrations, in the "American Medical Times" for June, 1862.

Case of Procidentia Uteri of fifteen years' duration, cured by reposition. Read before the Medical Society of the County of New York, and published in the "Transactions of the Medical Society of the State of New York" for 1863.

Monogram on "Placenta Praevia," with a résumé of the various opinions thereon, etc., etc. Read before the Medical Society of the County of New York, February, 1865, and finally published in quarto, elegantly printed and well illustrated.

Monogram of Recto-Vaginal and Recto-Labial Fistulae, operated on after a new method. Published in the Transactions of the Medical Society of the State of New York for 1866. This was in corroboration of former views, fortified by additional cases and observations.

Among his later contributions were,—a paper on Complete Anteversion and Anteflexion of Uterus at full term, "Medical Record," Vol. XV, page 112; and a paper on "Non-Shortening of the Cervix Uteri during Utero-Gestation," "Medical Record," Vol. XII (1887) p. 644.

Other publications, with the titles as below enumerated, are,—"Labour with Deformed Pelves," "Recto-Labial and Vulvar Fistulae," and remarks on "Puerperal Eclampsia,"—all works attesting his zeal, research, and unimpeachable judgment, but somewhat marred by a style in which involved sentences were too prominent a feature. More recently his con-

tributions to the Transactions of the New York State Medical Association, of which he was a Founder and ex-President, would require a passing reference to complete the list, were they not fresh in the minds of all.

Dr. Taylor held many positions of trust in the medical profession, in which his administrative abilities were fully put to the test, particularly as founder and life-time president of the Bellevue Hospital Medical College. He had, as may have been already inferred, an exceptional experience as a dispensary and hospital physician: he was well versed in methods, and had always been in intimate relations with the medical student as a clinician, so that the idea of establishing a college in connection with a great institution was only a natural outcome of long cherished convictions. Accordingly he drew up the charter of the Bellevue Hospital College, January 1, 1861, which was eventually granted by the legislature. The great school soon after began its prosperous mission, and still holds its own among the best of our institutions of learning.

Our friend had seen many, many years of an epoch which stretched from the goodly days to the metropolitan whirl, an epoch which in medicine witnessed the rise and fall of many empires of thought, which saw the glorious dawn of anaesthesia in surgery, the change of front from venesection to a trust in nature, the installation of the clinical thermometer, the birth of the specialties, the introduction of the instruments of precision, and the establishment of antisepsis. What a procession of notables has there not passed in review since the coming of Taylor to the city, a stranger in a community with idols of its own,—to him, in many instances, strange gods indeed! What a chronicler might he not have been! How many novelties, blithe and buxom, masquerading as reforms, has he not seen blooming but to die! How many germs of discoveries has he not watched before the growth! What traditions have there not perished with him! How many blinding splendours has he not likewise seen, and how many unfulfilled prophecies has he not known! What a roll of names has he not read, and how many hands has he not clasped! How many of the great have there not vanished before him!

At last, he himself came to the deep waters and crossed in peace. Happily for him, as for us, our friendwas spared "the lean and slippered pantaloon," the gait of fatuity, the garrulity of a life prolonged beyond the "three score years and ten," and the vacant stare of a soul gazing through ruins.

An old age not over-wealthy, but serene, was his, which stopped short of both mockery and regret, where there was neither shambling nor a staff, but the pardonable consciousness of having won his worth at the expense of no man's execrations. He was an optimist with ruddy face and beaming eye to the very end, a Douglas "tender and true," dying so gently, with book in hand, that his life seemed to have gone out like an exhalation in the gloaming.

MEMOIR OF EDWIN WEBB, M. D.

BY R. M. WYCHOFF, M. D., OF KINGS COUNTY.

Edwin Webb, M. D., an original member of the New York State Medical Association, departed this life, January 29, 1890, after a lingering illness. He was born September 2, 1804, in Devonshire, England, but was brought to this country by his parents while he was yet an infant. His childhood days were spent partly in New York city and partly in Brooklyn. It was at the latter place that he began the study of medicine under the well known firm of Drs. Ball & Wendell. This was nearly seventy years ago, and young Webb had not yet entered his twentieth year. He later entered the office of Dr. John W. Francis, at that time the Professor of Obstetrics at the College of Physicians and Surgeons, New York. Dr. Webb was graduated in 1825 from that school, and then located in Barclay street. He soon afterwards found an opening through an invitation to Hempstead, Long Island, which was accepted, and occupied with marked ability during nearly sixty-five years. His character was marked by self-reliance, fixity of purpose, and a good judgment of human nature. Intellectually he was rather above the average of his colleagues, so that in the days of his prime activity he was ranked as a leader in medical affairs. He was one of the founders of the Queens County Society, and was its president during four terms. He contributed to the scientific work of that Society in its earlier years, and occasionally wrote papers for the medical journals, but he had for many years little of that leisure which incites to frequent recourse to the pen. He built up a most extensive practice, and maintained it for more than an average generation. His estate, left to two daughters, who alone of ten children survive him, is stated to have reached a point of fortune seldom accumulated in a country practice save under most fortuitous conditions and by dint of many years of arduous labour. Dr. Webb's constitution enabled him to endure over half a century of such hard work, and his position in his community did not falter even when he was making ready to lay off the harness. He held various public positions in the care of the poor of the town, in the local board of health, and at the county jail. He was the medical representative of four or five large life insurance companies. In the church matters of the parish of St. George he was a tried and trusted councillor, serving either as vestryman or church warden during many years.

With all the years of usefulness, activity, and success of Dr. Webb, he was not without his grievous afflictions. He lost two sons just as they

were crossing the threshold of medical practice. His eldest son, Edwin, was graduated from the University Medical College in 1861, and became interne to the Brooklyn City Hospital. He had a malignant attack of diphtheria during the early months of his service there, from which he was apparently recovering, when peritonitis set in which was fatal in July of the same year. The youngest son, John Stagg Webb, a graduate of the College of Physicians and Surgeons in 1872, also died while a hospital interne. He was suffering from the effects of a dissecting wound when he went on duty at the Flatbush Hospital, where he was taken with a sharp attack of fever which ended his life in March of the same year as that of his graduation: he was in his 23d year. In the loss of these two sons, both of them young men of ability and promise, Dr. Webb experienced a blow such as has befallen few, if any, of his professional Fellows.

He always took a great interest in our Association. Although able to attend but few of its meetings, he has been anxious and pleased to hear of its proceedings and success. He has represented Queens county on the Executive Committee of the Fifth District Branch since the founding of the Association. We all, and those in his district especially, feel that we have lost a staunch friend and Fellow.

MEMOIR OF CHARLES S. WOOD, M. D.

BY CHARLES A. LEALE, M. D., OF NEW YORK COUNTY.

One of the most familiar faces will be seen no more, and the cheerful voice that has often greeted us at our annual gatherings is now silent. Dr. Charles S. Wood died at his residence in New York city, at twenty-seven minutes past one o'clock on the afternoon of February 1, 1890, in the sixty-fifth year of his age. Dr. Wood was born in Litchfield, Connecticut, February 27, 1825. His father, David W. Wood, and his mother, Beulah Beechwood, were natives of Connecticut, and lived on their farm where Charles, the eldest of their ten children, was born. The struggle for existence of the New England farmer wholly dependent upon the products of the rocky soil of Litchfield for the support of a large family compelled the parents to make their eldest son useful at a very early age. The subject of our sketch, almost as soon as he could walk, began to work, and his youthful years were spent in out-door labour, which, with an abundance of wholesome food, undoubtedly did much to develop his compact and strong body, and caused him to gain the physical vigour that subsequently enabled him to perform the necessarily long and and continuous duty of his active army life. At the age of 26 years Dr. Wood received the degree of M. D. from the Jefferson Medical College, Philadelphia, and his thesis, written in the French language, covering over thirty pages of foolscap, demonstrated at the commencement of his professional life that no obstacle was too difficult to overcome, where a good brain and an excellent physique were combined with a laudable determination to conquer.

Shortly after graduation Dr. Wood settled in Greene, Chenango Co., N. Y., where his devotion to his patients, his love of his work, and his eminently charitable disposition, very soon gave him a large and self-sustaining practice. It was in the midst of this rural population that he spent his proudest days surrounded by a peaceful and contented community whose prophet and seer was their beloved Dr. Wood. He did his best, and resorted to many surgical devices showing the ready adaptability of his mind to utilise objects within his reach, out of which to make surgical instruments and necessary apparatus for the adjustment of fractures and the reduction of dislocations. Thus working with intelligence and zeal, he gained the confidence of the people, and was rewarded by receiving in return a fair share of the results of their labour, either in money or the products of their farms. While in this happy condition, he resigned all in favour of a younger brother, and as assistant surgeon

of the 66th Regiment New York Vols., started for the seat of war, with many of his former patients among the officers and enlisted men of his regiment. At the end of a year's service Dr. Wood was promoted to the position of surgeon of his regiment with rank as major, and was in a few weeks detailed for special duty in the hospital as one of the operating surgeons of the Second Army Corps of the Army of the Potomac. He was always ready for his full share of work, and with the Army of the Potomac participated in most of the battles of that terrible campaign. Dr. Wood was on active duty at the battles of South Mountain, Antietam, and Chancellorsville, and at the battle of Gettysburg was in charge of a large field hospital, where he performed a very large number of amputations on both the Union and Confederate wounded soldiers.

In 1863 he was ordered to Washington for examination in the Medical Corps of the United States Volunteers, and after a week was commissioned as Assistant Surgeon U. S. Vols., to be promoted at the end of three days to the position of Surgeon U. S. Vols., after which he was ordered to report to General George Wright, and was placed in charge of the only U. S. Army General Hospital on the Pacific coast, at the Presidio of San Francisco. At this station Dr. Wood had under his care a large number of patients suffering from the chronic malarial diseases, rheumatisms, and dysenteries so common in that climate. Before leaving the army of the Potomac Dr. Wood began to suffer from the effects of his long exposure to miasmatic influences, which, however, his strong constitution soon overcame after a brief leave of absence, but only to be renewed after a residence near Sacramento, California, where his monotonous life in hospitals containing malingerers and the chronically disabled had its usual depressing effect, and Dr. Wood pined for the more active scenes amidst the joys and sorrows of fighting comrades. The boy accustomed to out-door exercise, the youth performing the work of a farmer, the school teacher having only a few hours daily of confinement, the young country physician spending one half of his time driving over a healthful country, and the army surgeon living in his tent, represented varieties of life in harmony; but when the change was made to the malarial district of Sacramento and the inactive life of a camp hospital, the surroundings were so depressing that many of the stimuli of life departed, and Dr. Wood from the cheerful and robust man became transformed to the quiet, rather melancholy, but ever conscientious physician.

Dr. Wood was fond of associating with his professional brethren, and his judicious remarks upon most subjects connected with either medicine or surgery gave him a commanding position. His great personal experience prevented him from following the rapidly fleeting fashions of less practical minds, and his contempt for those who were willing to sacrifice life to experiment, or even blindly to follow ambitious teachers, knew no bounds.

On the Judicial Council of the American Medical Association, Dr. Wood was relied upon as a firm upholder of the Code of Ethics, and he so much cherished the motto, "Guard the Faith," of the New York State Medical Association, that he always wore its beautiful badge. For the past twenty years of his life Dr. Wood was engaged in the general practice of medicine and surgery in New York city. He belonged to several of the most important medical organisations, and during the prosperity and usefulness of the New York Medico-Legal Society was one of its most useful presidents.

Dr. Wood was one of the founders and subsequently a president of the Northwestern Medical and Surgical Society of New York city, and at the time of his death had just begun his second term as president of the New York County Medical Association. The health of Dr. Wood continued good until the summer of 1889, when on a visit to Clayton and out on the St. Lawrence river he remained chilled for several hours, after having been overtaken by a storm while out fishing two miles away from home. Although he supposed that he had thoroughly convalesced, a chronic kidney disease developed which steadily progressed; yet he continued at his professional work, and actually performed a surgical operation ten days before his death, and it was with the greatest difficulty that the writer persuaded him to remain in bed three days before his death. He died in peaceful coma attended by his accomplished and devoted wife, all his four esteemed and affectionate children, by other relatives and friends, and by the writer who had known this noble man for over twenty years.

His funeral services were attended by all his family, by many of his professional associates, and his old army comrades. His remains were conveyed to their final resting-place in the churchyard of his ancestors near Litchfield, Conn. His handsome, symmetrical, and peaceful face even in death reminded us of a life well fought, and many honours won. On his breast were carried to the tomb two symbols of his useful life—the gold American eagle, and the ribbon with the stars and stripes and the pendant thereto of the Grand Army of the Republic; also his New York State Medical Association badge with "Guard the Faith."

"FIDELI CERTA MERCES."

REPORTS OF THE DISTRICT BRANCHES.

FIRST DISTRICT BRANCH.

The sixth annual meeting of the First District Branch of the New York State Medical Association convened at Hotel Warner in the city of Amsterdam, on Tuesday, July 1, 1890.

The meeting was called to order at 1 P. M., by the President, Douglas Ayres, M. D.

There were present, and registered, Fellows from Montgomery, Oneida, Schenectady, and Rensselaer counties.

The minutes of the last annual meeting were read and approved.

The Treasurer then read his report showing receipts of $18, and disbursements for printing, postage, etc., so as to leave the Branch indebted to the Treasurer to the amount of $3. As the report was made in items, it was approved.

The President's address, referring to current medical events, was timely and well received.

Dr. Wm. H. Robb then read a paper entitled "A single point in the Treatment of Pott's Disease of the Spine," and illustrated it by showing a case in which the plaster jacket had failed to relieve, and had produced serious excoriation at the point of curvature in a measure due to the narrowness of the hips which allowed the jacket to slip down. The curvature being rather high in the dorsal region, relief was given promptly with the wire cuirass and head support.

Dr. E. D. Ferguson then read a paper on "Exophthalmic Goitre," in which he detailed the favourable effects of strophanthus in the treatment of a series of eight cases, and dwelt somewhat on the pathology and clinical history of the disease. An illustrative case was presented by Dr. Robb.

Dr. Charles Hammer then read a paper on "Puerperal Septicaemia," which called forth considerable discussion and favourable comment.

On motion, the Nominating Committee was dispensed with, and the present Executive Committee was continued for another year.

In the absence of a majority of the Executive Committee, it was decided that the present Secretary shall continue in office.

Some discussion was had relative to the advisability of holding the next annual meeting in connection with the Second District Branch at Troy, in June, 1891, but it was finally decided to leave the time and place of meeting with the President and Secretary.

Adjourned.

DOUGLAS AYRES, *President.*
EZRA GRAVES, *Secretary.*

SECOND DISTRICT BRANCH.

The sixth annual meeting of the Second Branch of the New York State Medical Association was held at Catskill, N. Y., June 24, 1890.

The meeting was called to order by the President, at 11 o'clock A. M.

An address of welcome was read by Dr. O. G. Selden.

On motion of Dr. Ferguson, the thanks of the Association were voted for the able and eloquent paper.

The President, Dr. Burton, gave the annual address on the topic "Some of the Leading Events of Medical Progress."

The papers numbered three and four of the programme were by motion deferred until the writer could be present.

Dr. Crombie of Rensselaer county, presented a paper, entitled "Curative Reflex Phenomena." He gave a history of a case of prurigo from masturbation, which he relieved by passing a metallic urethral round a number of times. No stricture was found, and the subacute urethritis was cured by this treatment.

A paper entitled "A Case of Extensive Loss of Scalp," was reported by Dr. C. E. Fritts, of Columbia county. A female operative in a factory was caught by the hair on a revolving shaft, and completely scalped, the wounded surface measuring seven by six inches. The surface was cleansed and washed with bichloride solution, one to two thousand parts; wound approximated by catgut sutures to two inches with little pain. Ten days afterward twenty-one skin grafts were made from a recently amputated finger. Nearly all of these lived, and seven grafts were added three days later. Chicken-skin grafts failed. The patient did well, and recovered with but little cicatrix.

Remarks were made on this paper by Dr. Ferguson.

The title of the next paper, which was presented by Dr. J. B. Harvie, of Rensselaer county, was "Delayed Union in Fractured Bones." He related one case in which amputation was made in consequence of gangrene. A second case, in a young man, of fracture of both humerus and left ulna. At the end of three months no union had resulted. Patient had syphilis at the time; was put on antisyphilitic treatment, and union took place.

In another case a syphilitic young man had fracture of the tibia. Union was delayed until specific treatment was given, when union resulted. In a fourth case, with non-union at the end of three months, in a fractured ulna the ends of the bone were turned out through an incision, and the ends were freshened with a good result. Pregnancy

was referred to as another cause of non-union. The local causes of this trouble were mentioned,—wide separation of fractured ends, interposition of muscle, improper dressings, a high degree of inflammation, suppuration, etc.

He is of the opinion that syphilis is a common cause of delayed union when the disease is recent.

A case of the destruction of one lung was reported by Dr. Wm. Finder, Jr., of Rensselaer county. The patient, a young man, taken ill in January, had pneumonia, which terminated in gangrene of lung. His temperature reached 104° Fahrenheit, respirations 40 to 50, and pulse 120 to 140. There was effusion into the right side, which was aspirated unsuccessfully. The man lived four months from the onset of the disease. On post-mortem examination, one and one half gallons of pus were found in the chest, the liver being pressed downward by the effusion three inches. He was not jaundiced. No albumen in the urine, and he had sub-normal temperature before death. Photographs were taken at the post-mortem examination, which were shown.

This paper was discussed by Drs. Ferguson and O. G. Selden. The latter spoke of embolism as the cause of gangrene. He also related the history of the prevalence of pneumonia in Ohio in 1870.

Dr. Robert Selden reported a case of injury to the stomach from external violence. A young man present at this meeting was shown, who received a severe blow with a man's fist in the epigastric region. He had repeated attacks of pain in the year following; in January had rheumatism, haematemesis, vomiting of pus, and persistent flatulence. Since June 3, the patient says he is "filling up."

Dr. Ferguson read a "Memoir of Dr. William S. Cooper," which was referred to the Committee on Publication for publication in the Transactions.

Dr. Ferguson presented a paper on "The Therapeutics of Exophthalmic Goitre," showing beneficial results from the use of strophanthus in eight cases. This remedy was used by him for a year before he saw it recommended by any one else.

Dr. Fritts also reported cases showing very favourable results from this remedy.

Dr. Ferguson showed two recent urethral instruments—a urethrotome, and a urethrometer and urethrograph, by Dr. Stewart, of Pittsburgh, Pa., and while praising their ingenuity, he expressed doubts as to the reliability of the instrument for graphically representing the calibre of the urethra.

On motion of Dr. Van Zandt, the thanks of the Association were tendered Dr. R. Selden and the Committee of Arrangements for their successful efforts in making this meeting pleasant and profitable; also to the Rip Van Winkle Club for the use of their rooms.

On motion of Dr. Ferguson, the time for the meetings of the Branch shall be changed to the fourth Thursday in June of each year.

The Treasurer's report, showing a balance of $8.79 in the treasury, was presented, accepted, and adopted.

Dr. McE———, an invited guest, reported a case of concussion of the spine occurring in his own person, with the usual symptoms, improvement taking place slowly, so that he now walks without crutches. He had found great relief from frequently washing out his stomach for the resultant dyspepsia.

The Executive Committee of last year were retained.

The next meeting of the Branch was appointed to meet in Troy on the fourth Thursday in June, 1891.

The meeting then adjourned.

M. H. BARTON, *President.*
CHARLES H. BURBECK, *Secretary.*

THIRD DISTRICT BRANCH.

The sixth annual meeting of the Third District Branch of the New York State Medical Association was held at Syracuse, June 19, 1890, in the Supreme Court room.

There was a good attendance. The following registered with the Registration Committee:

J. G. Orton, F. W. Putnam, C. W. Greene, J. H. Chittenden, William Fitch, William A. Moore, P. A. Hayes, Nathan Jacobson, Frank G. Seaman, A. J. Campbell, Geo. D. Bradford, H, O. Jewett, Leroy J. Brooks, R. A. Thompson, F. O. Donohue, Dwight H. Murray, F. Putnam, J. R. Flanigan, F. H. Stevenson, Ely Van de Warker, John D. Tripp, A. D. Head, C. Green, F. W. Sears, W. R. Laird, H. D. Didama, U. H. Brown, A. H. Brownell, M. Billington, Chas. M. Magee, C. A. Hatch, E. F. Lamb. (All did not register. About 60 attended.)

The reading of the minutes of the last meeting was dispensed with.

The Secretary reported the business transacted by the Executive Committee.

The President read his address (a synopsis of which follows later), and at its conclusion made the following announcement:

The President of this Association desires to offer, as a prize, a complete set of the "Medical and Surgical History of the War," in six quarto volumes, for the best short essay on some subject connected with "Practical Popular Sanitation." Competition confined to the Fellows of this Association.

Manuscripts should be forwarded to the President's address by the 1st of April, 1891, accompanied with the name of the author under seal. A committee of examination and award will be selected from the profession outside of this District Branch, and the successful essay will be read at the next meeting of the Association, and offered for publication in the secular press. J. G. Orton, Binghamton, N. Y.

The proposition was referred to the Business Committee.

The following Nominating Committee was named:

Broome,	J. H. Chittenden.
Cayuga,	F. Putnam.
Chenango,	R. O. Thompson.
Cortland,	H. O. Jewett.
Madison,	J. R. Eaton.
Onondaga,	F. O. Donohue.
Seneca,	F. G. Seaman.
Tompkins,	Wm. Fitch.

At the afternoon session the Nominating Committee presented the following report:

Place for next annual meeting, Binghamton; date, third Thursday of June, 1891.

Secretary, Dr. F. W. Putnam, Binghamton.

Executive Committee:

Broome,	Wm. A. Moore, Binghamton.
Cayuga,	W. R. Laird, Auburn.
Chemung,	C. W. Brown, Elmira.
Chenango,	L. J. Brooks, Norwich.
Cortland,	Geo. D. Bradford, Homer.
Delaware,	W. B. Morrow, Walton.
Madison,	. . . . .
Onondaga,	F. O. Donohue, Syracuse.
Otsego,	J. J. Sweet, Unadilla.
Schuyler,	B. T. Smelzer, Havana.
Seneca,	Elias Lester, Seneca Falls.
Tioga,	W. L. Ayer, Owego.
Tompkins,	Wm. Fitch, Dryden.

The Business Committee presented the following: "The Business Committee would call attention to the recommendation of the President with reference to inviting the medical organisations of this state to appoint special committees on 'Popular Sanitary Science,' and would offer a resolution endorsing that suggestion."

On motion, the report was accepted, as was also the proposition of the President to offer a prize for the best short essay on some "popular sanitary subject," the conditions being the same as named by him.

The following is an abstract of the papers presented at the meeting, and the discussion of them:

Address of the President, J. G. Orton, M. D.—Popularising Sanitary Science. The recognition of this important science has been greatly aided through the agency of the various State Boards of Health. Formerly, at the times of epidemics, the masses stood by paralysed, seeing in the ravages of the disease the wrath of a displeased Deity. They did not understand that the epidemic was the result of breaking the laws of hygiene, and that the scourge could be remedied by attending to these laws. The great advance made in this work in the last twenty-five years shows that the great majority of diseases are either remediable or preventable. It is far better to prevent the occurrence of disease, than to wait, and cure it when present. Among the poor is disease especially prevalent; yet here its origin is within the control of human aid and effort. As one of our old writers says,—"We should spend the time before an impending epidemic in purifying the poorer

districts." The doctor, while giving constant attention to the cure of disease, must at the same time make every effort towards its prevention. It has always been his effort to obtain the coöperation of the masses in this direction. What progress has been made in hygiene is due mostly to the medical profession. When the physician could not legislate, he would teach; and when he could not teach, would warn.

The first step for advancement is the education of the masses in the science of hygiene, that the aetiology and propagation of disease may be understood. The special point is, How are the profession and the individual best able to promote the sanitary condition? We, from our calling, are in a certain sense "our brother's keeper." To do this, we must be fully cognisant of the laws of sanitation, and the means for removing existing evils. There is plenty of available literature on this subject, and a lack of knowledge can be due only to indifference. The State attends to the public health when the ravages of disease are such as to demand the State's power. The right of the State to control in sanitary affairs is allowed, and its efforts should be aided by every endeavour to spread knowledge through the masses. Ignorance is the great detriment. The methods are,—

The public schools. Have the laws of physiology taught, and those of hygiene and sanitary science. All teachers should be required to know of such laws enough to instruct their pupils in the laws of right living. As all classes are represented in our public schools, therefore in this manner could all classes be reached. During the most critical part of their lives, when the body is growing and developing, our children are required to obtain their greatest amount of knowledge. Teachers should therefore be able to select and regulate the studies to suit the child. Our schools should be in perfect sanitary condition. In each town, one or more doctors, fully informed and salaried, should be appointed to supervise the sanitary and hygienic conditions, and give occasional lectures to teachers and scholars.

The press, which has the mightiest power in the land, should be used. Let the various medical societies appoint a board whose duty it shall be to prepare papers on popular subjects of sanitation for the press. Let the State circulate free literature on the subject through our schools. Use our great dailies. Though used by quacks, charlatans, etc., here they could be used for the good of the public, and especially as our own journals rarely meet the attention of the laymen. Remember, however, that though we lead, we must never get out of sight. Let no one be discouraged because his efforts are not appreciated by the masses. Often the simplifying of the science so as to be appreciated by the lower classes is difficult, but it is important, and in the end gives the greatest reward. Even those of the educated higher class, if they know the laws of hygiene, fail to obey them, as is seen in our poorly ventilated houses,

schools, churches, etc., in the modern bath-rooms, the dress which our daughters wear, and the late hours they keep. These are but a few of the instances. Under such circumstances, what can state legislatures do? Universal knowledge is the only remedy. The position which a physician occupies in society gives to his example a great influence for good or evil: hence we should set the example by our obedience to the laws of hygiene.

Excesses are always harmful, either immediately or remotely. Intemperance, sensuality, and kindred vices cause results of which any of us can testify. Unremitting mental labour is prolific of decay and mental failure. We must have rest to keep up the mechanical economy,—not only sleep, Nature's restorer, but also stated periods of rest. The Sabbath, aside from its moral improvement, is, for the purpose of restoring and maintaining our physical health, of the utmost importance. But for this day, set aside by divine wisdom, the fair fabric of our modern world would soon be destroyed. If the medical profession will be true to humanity and itself, it will be a success. In the future I see a heavenly city yet on this side of Jordan;—through it run fair rivers not polluted by sewage, walled in by the laws of sanitation; streets not of gold, but not defiled with filth; buildings founded on soil which is not infected with all manner of disease; and all the people, both rich and poor, having an abundance of pure air and water. Here the medical profession has obtained its highest development. May it not be long before this city is seen in reality instead of fancy!

H. O. Jewett, M. D.—Medicine Past and Present. The fundamental principles of a science are always the same, since they are truth, and truth is always the same. However, this is not so in medicine. Progress indicates change, and as we compare the heroic antiphlogistic treatment of earlier times with the tonic, stimulating, and, I may say, semi-expectant treatment of the present, we must come to the conclusion that the early practitioners were wholly at fault in their observations of nature and the effects of therapeutics, that the human race has deteriorated in strength and endurance, or that nearly all our diseases have changed from a sthenic to an asthenic form. Is it true that such men as Cooper and Hunter were wrong? Their deductions were obtained from practical experience. They had no microscopes, knew nothing of germs, asepticism, or antisepticism; yet they were familiar with the signs of life and death, and could tell whether the patient would live or die. Their Materia Medica, though small, was effective. In opium they had a sleep producer, in antimony an emetic and heart depressant, and with calomel they could flush out the intestines. Whatever may be said of the crude efforts of *ye olden times*, they bearded the lion in his den, and, though their treatment was heroic, can they not show as many cures as at the present? Their efforts were blind but powerful, and caused destruc-

tion to disease or patient, according to which they hit. The longevity of man is increasing. This is due to better hygiene and living, more rest, and less manual labour, which extends the activity of youth. Perhaps it may be due to the introduction of antiseptics and anaesthetics, but man recovers easier, and from greater shocks, than ever before.

As to the change from sthenic to asthenic form, the cause is unknown. But cholera, yellow-fever, and cerebro-spinal meningitis were treated successfully by depletion, as in the cases reported by Dr. Dover. I believe that our acute inflammatory diseases of the present time would be benefited by the lancet. In acute pleurisy, first stages of pneumonia, and eclampsia, it is the best remedy. In obstetrics we often witness profuse haemorrhage with no apprehension, and see no ill effects. A doctor should confine himself to facts, not theories. We older physicians were taught to use the lancet, and never expected a death to follow depletion in early stage. In pleurisy we expected a rapid recovery after bleeding, and where we now have twenty cases of effusion we then had but one. We have learned much from homoeopathy and kindred humbugs; we have learned that many diseases are self-limited and self-curative; but how much the process is hastened by proper medication is a question. The present time is the age of advance, and medicine is neck and neck with the other sciences. It is the age when we make the sunbeams print our pictures and lightning send criminals to eternity. We should practise better than those of old, because of our microscope, laryngoscope, etc. But have we advanced in the prevention of disease? Is it not a question if our advance is truly an advance? Is the great mass of medical literature a help, or not? Is the rapid expanse of our pharmacopoeia an advantage? Is it better that the powders and boluses of the earlier days should give way to the protean forms of administration of the present? Does it not tend to promote laziness and a lack of original investigation in the making of diagnoses? The advancement in chemistry, the special studies, mental diseases, and the like, are a great help, and have introduced many humane changes in care and management of the sick and feeble. Specialists, not including the one who looks through a pin hole and refers the cause of all ailments to his limited department, but the men of broad knowledge, are enlarging the sphere of the profession. Also in surgery is there great advance. Hunter, Cooper, and Bell taught surgery so that some claim but little has been done since. Yet if these old masters should rise from their graves, they would be astounded by the great advance. The use of anaesthetics, the great field of asepticism and antisepticism, are since their time. Now the great cavities are freely opened, the cranium removed, and the vital organs exposed. But, as ever, the requisites of a good surgeon are knowledge, experience, coolness, and skill. The one important thing, in both physician and surgeon, is accurate diagnosis.

Dr. Van de Warker. This paper causes us to scrutinise the advance of the present. The increase in longevity, endurance, and strength should be taken as a measure of whatever progress we are making. Man can now endure more mentally and physically than ever before. This is acquired by his better living. The type of disease has preserved its generic qualities, and the human family bears blood-letting as well as ever. The reason of its disuse is because it is not the fashion, none of us being so brave but what we regulate our treatment by the opinions of the laity.

W. H. Dunlap, M. D.—Dermatitis Multiformis. The disease is vesicular, pustular, and bullous.

Case. Woman: eruption general, mostly on back, abdomen, and buttocks; fore arms and legs not so much. The neck and ears well covered. Vesico-pustular, some pustules and bullae. In the grouping of lesions, the size varied from pin-head to split pea, base reddened, especially in pustular form, usually so near together that areolae coalesced. Occasionally a hard papula. Crusts thin, white like pastry, when removed skin beneath smooth, shiny, and red; no ulceration nor excoriation. Subjective symptoms not much. Itching preceding the appearance of the eruption, followed on its appearance by some burning. The patient poor (socially), fairly good health, appetite good, no anomalies of circulation. The case began as follows:

In 1886, after birth of last child, a small blister beneath each axilla, serum absorbed in the centre, while new ones appeared about the edge. This all healed, and later appeared on abdomen. In the fall had a severe attack, and has never been free of the eruption since. Lesion varies: when patient is strong, it is vesicular; when run down, pustular. Diagnosis, dermatitis multiformis. Treatment, quinine, iron, and Fowler's solution. Of the latter, began with m. iii t.i.d. and increased to m. vi. Local treatment, salicylic acid, 1%. Diet, simply restricted. Gradual improvement.

Dermatitis multiformis is intermediate between pemphigus, herpes, and erythema multiformis. Formerly called hydroa. In 1876, Hebra described a rare disease resembling this, under the name impetigo herpetiformis. Differs only in being pustular lesion from the start; small lesion, occurs in puerperal state, and is fatal. Duhring calls all these forms dermatitis multiformis. The synonyms are hydroa, dermatitis herpetiformis or multiformis: the latter is according to the American classification.

Hydroa has a succession of outbreaks, vesicles, pustules, erythema, or bullae; grouped, grow peripherally; itching and burning, severe; location, bilateral; parts below the knees not much affected. In this case the back is much affected, which is unusual. Pathology: but little is known; supposed to be of nervous origin, irritation of vaso-motor centres. This connects it to pemphigus and erythema. Prognosis: mild

cases, not bad; in severe cases, bad; always apt to have relapses. Treatment: quinine, arsenic, and belladonna; arsenic must be pushed to tolerance of patient; quinine comes next; and if these fail, can use belladonna in large doses, m. xxx of the tinct.; locally, a simple ointment; if itching, antipruritics.

W. A. Moore, M. D., Binghamton. — Supra-Pubic Lithotomy. Report of case: Mr. W., age, 21; single; residence, Binghamton. A year and a half ago had symptoms of vesical irritation. Great difficulty in passing sound because of spasmodic stricture. Concluded to operate. Patient in good condition; urine, three per cent. albumen. Antiseptic precautions, hips elevated, bladder distended with boracic acid solution. Incision made in median line. Necessary to distend the bladder a little more; peritonaeum not in view. Incision made in bladder, and had to be enlarged twice before the stone could be removed. The calculus weighed 320 grs. After removal the incision was sutured, a drainage tube being left in. The next day the tube was somewhat disturbed by the patient's vomiting. Have operated in four other cases,—one, a boy, the calculus weighed 420 grs.; the next, a man, 42 years, with multiple calculi; the other two were for injury. But one of these cases was in private practice. Rupture of the bladder or rectum from gravity is rare. Infiltration should be prevented, and the peritoneum should not be injured, as it can be drawn aside.

Dr. Ely Van de Warker.—Question of drainage. Why not suture up incision with buried sutures, and drain from urethra?

Dr. Madill, Ogdensburg.—Reported three cases. Modus operandi the same. No difficulty in finding bladder. Position dorsal, with knees over shoulders of an assistant. Be sure and keep in median line. The drainage is perfect. Introduce tube six to seven inches in length in incision, then attach a tube from five to seven feet in length, which reaches over bed to vessel. Siphon formed, and gives perfect drainage. Left tube in five days; healed in two weeks. In the third, trying to hasten union with strapping, a small abscess formed, necessitating paring the edges of the wound. Catheter acts as foreign body, and any other way is an unnecessary operation. As preliminary treatment, gave good doses of salol for four or five days preceding. Temperature never raised after the operation.

Dr. Ely Van de Warker.—Radical Treatment for Stenosis of Cervix Uteri. This question is still unsolved. Each gynaecologist has his own method, but it is rare to secure any that have permanent results. The results to accomplish are to relieve dysmenorrhoea and sterility. Sim's operation is now obsolete. Peasly thought to reach the same result by internal incision. Tents and gradual dilation only partial. If forcible dilation is done slowly, can dilate to an inch with no rupture. Never saw any good from tents except just preceding menstruation, then

only lasts for a month. Gradual dilators not good unless remodelled, as the points entangle in cervical canal. Have used a set of male urethral sounds for this purpose. If neglected for a month, patient relapses to original condition. Goodell's divulsion, taking about one half hour, causes little rupture. Must be kept open, or will again contract. This instrument is the best now in use, but not yet perfect, for, as dilation is made, the uterus slips off the blades, and must be held by tenaculum. The serrations do not prevent this,—in fact, are no better than the smooth blades. In dilating the cervix, the connective tissue fibres are ruptured: hence the great tendency to contract. His mode of operation is, forcible dilation until considerable resistance: this is greatest at internal os. Now make incision from internal to external os. For this he uses an Otis male urethrotome. It is safe, and one can also tell how much he is cutting. Now introduce dilators, and with little force can dilate to full extent. In small organ, if there is great rupture, immediately perform trachelorraphy. Haemorrhage is slight. Plug cervix with iodoform. Hot bottles to patient's legs to combat shock. On third day, begin to use gradual dilation. Use every other day, extending over twenty days. All to be done antiseptically, and hot bottles to legs each time. Results: In the married, often followed by pregnancy; in the unmarried, relief for two to four years. But "once a stricture always a stricture." Only permanent cure is pregnancy and parturition, and even that sometimes fails. Always verify diagnosis by exploration. Stenosis of external os, called pin-hole os, is either membranous or extends along the canal. For the former merely a crucial incision, with the separation of the wound for a few days, is all that is necessary. Stenosis from flexion: seventeen years ago began the treatment with uterine stem, and have never regretted its use. His own experience convinces him it is the best treatment. Before introduction, the uterus should be free from adhesions and the pelvis from inflammation. Introduce carefully, antiseptically, and do not injure the endometrium. If must first forcibly dilate, wait until completely healed. Of course will have some resistance trying to introduce straight stem through crooked canal; first straighten with sound. Cases of apparent spontaneous cure. Pain gradually abates, accompanies general debility, flow diminishes until the little can pass easily through the stricture. As condition improves, the pain decreases. Better to treat at once by forcible dilation than by tonics.

Nathan Jacobson, M. D.—Recent Advance in the Radical Treatment of Hernia. Treatment has been revolutionised by antiseptics. In Holmes's System of Surgery find the statement that none of the so called methods of radical treatment are such. Methods pursued are invagination, cautery, removal of sac, ligation, and compression. Since 1880 it has been the effort of surgeons to effect a radical cure, that is, the restoration of the protrusion and of the parts so as never to need the

support of a truss. Time is the test of a radical cure. The exact length is a question, but about a year is the usual limit. The operation is no longer counted as dangerous. Schede had one death out of fifty, and that of fatty degeneration of the heart. Marcy claims,—in competent hands, not more than one per cent.; and in 799 cases only five deaths, and those not due to the operation. At present the operation for strangulated hernia is incomplete unless made radical. But even in such cases the mortality is less than formerly, for non-strangulated the percentage being but little over five per cent. Herniotomy is now an innocent procedure, the danger being in the condition of the sac and contents, in taxis, and in delay. The condition of the patient is to be considered : if cachectic or very aged, the operation is not to be done; nor if the hernia is well supported by a truss, neither is it to be done in children except where, when grown, will have hard labour to perform. Always to be done where not held by truss. In the present time we use the knife freely, open the sac, expose the canal and rings, and heal by first intention, or granulation, as suits the operator. Nearly all surgeons concede the necessity for the removal of the sac. Some, however, by longitudinal sutures, form the sac into a bulwark. Treatment of neck—ligation : open the sac, pass finger to internal ring, return the intestine, or if omentum remove; now make traction on fundus of sac, and with finger prevent the intestine from protruding. Marcy uses sutures and the shoemakers' stitch; in this manner have no dimpling at internal ring. Bull twists the sac, and then fastens the neck in the internal ring. Some surgeons ligate the sac at external ring. Marcy adopts the method of splitting the inguinal canal. Suturing the ring : surgeons on this point are divided; some are for and others against it. It is claimed that the ring is firm and not elastic, that it is of no use to suture it. However, it narrows the opening, and it is never desired to close it enough to cause pressure on the spermatic cord. The selection of suture material depends on the operator. Marcy uses the kangaroo tendon and shoemakers' stitch, Schede the buried silver suture.

Closure of the wound : McBurny turns the skin in to prevent primary union, but uses sutures to prevent too great separation, dresses it with iodoform and rubber dressing to keep out faeces and urine. This method takes from five to six weeks, and is the one generally used by the American surgeons. Marcy uses the kangaroo tendon and shoemakers' stitch, obtaining primary union which does away with drainage-tubes. His only dressing is iodoform collodion. Schede also has primary union, but he uses the interrupted suture, claiming that the circulation is less affected and primary union more apt to be obtained. Marcy and Schede agree in the main points of the operation, and both claim the results as almost always successful.

Leroy J. Brooks, M. D.—The Special Gymnastics for the Treatment of Rotary Lateral Curvature of the Spine. In this curvature, experience has convinced me that jackets of whatever material are of no benefit. Yet if the affection is far advanced, and there is no hope from other treatment, some good may be obtained from a light jacket. The jacket is intended to hold what is gained by suspension, but the laced jacket acts only as a corset, and the compression causes muscular atrophy. As the aetiology of this disease is atrophy of the muscles, it does not seem to me proper to apply an apparatus to increase the cause. In the use of gymnastics, to suggest the treatment and then depend on patient and friends to carry it out, will always result in failure. The patient must become an office patient. If wearing a jacket, it is to be removed and a course of massage instituted to tone up the atrophied muscles. The gymnastics consist of Robert's system one day and the special ones the next. These special ones are those of Sayre, modified by me, their object being to bring into play the weakened muscles. Besides these I use the chest weights, travelling rings, and the rowing machine, and electricity on alternate days to the weaker side.

Have three cases to report, one of these my own. One wore the close fitting jacket, the others the laced. All gradually grew worse.

Case I. Lady, tall, slim, 20 years; had a double curvature, one in upper dorsal, the other in lumbar. Pain constant from pressure and neuralgia. Spine three and one half inches out of line. Put under treatment and had rapid improvement. At the present time is a perfect gymnast.

Case II. Girl, 16 years, delicate, injured by being thrown from a carriage. Put under treatment and massage. At present she is strong, healthy, has gained 14 pounds, and spine is two and one half inches nearer median line.

Case III. Girl, 15, tall and slim. When first seen, applied a jacket, but she grew worse. This was removed, and the above treatment instituted. She then weighed 92 pounds, was nervous and debilitated; she now weighs 108 pounds, hardy, strong, and walks easily. Spine is one and one fourth inches nearer median line. She is still under treatment.

Dr. N. Jacobson. I appreciate the necessity of building up the strength and muscular tone of the patient, but my experience does not justify the disuse of the jacket. When properly applied, it is of much use. The closed jacket is more harmful than beneficial, but a jacket made of plaster roller bandages cut open and laced gives tone and support to the muscles. Before I began using massage and gymnastics, had a number of cases which did improve and recover with the jacket. In my opinion the corset jacket with gymnastics and massage is the best treatment.

Dr. F. W. Sears. Would you not use the jacket when also there is marked angular curvature? I had a case complicated with marked angular curvature. The patient was unable to walk; applied a jacket,

and next day he walked out of doors. Has improved continually since, can walk erect without jacket, but easily tires; with the jacket can easily walk a mile. Recommend the jacket during the day with its removal nights, combined with gymnastics.

Dr. L. J. Brooks. Do not object to jacket when well applied, or in such a case as stated. However, the majority of jackets are too heavy. I prefer the paper since it gives as much support, is more durable, and weighs three to five ounces where plaster weighs as many pounds. I make these jackets in this manner: First make a plaster jacket, then form my paper on this. I use layers of Manila paper with glue, oxide of zinc, and starch. I strengthen the jacket by some pieces of old hoop-skirt run longitudinally in the midst of the paper. Then, when the whole is dry, bind with chamois and lace. See no use for the actual cautery.

H. D. Didama, M. D.—The Limits of Mental Therapeutics. Two hundred and fifty years ago Von Helmont reported that a poor man in a public jail in Berlin wrought wonderful cures with a simple remedy, a small pebble. Some of the cures are as follows: Dipping the stone in a teaspoon of almond oil, a few drops cured a monk of erysipelas; again, when dipped into a spoon of olive oil and the oil poured in a large vessel of oil, a few drops of the mixture cured an old woman of hemicrania. Many more of these wonderful cures were reported. From years before the time of Von Helmont to the present time, cures have been effected by mental therapeutics. From the time of Mesmer and Perkins down even to our own rag-priestess have been witnessed temporary ameliorations or permanent cures. Their practices, generally silly, more often fraudulent, harmful, or destructive, were yet not unmixed evils. The Eastern sisters, who deny the existence of disease and then go to work to cure it, boast of the celestial benedictions attending their ministrations. Mental therapeutics, or, better, mind treatment, is used, consciously or unconsciously, by the doctor every day in selecting the proper medicines or instrument, or in regulating the diet and hygiene. Mental therapeutics consists in that confidence a patient has in the knowledge and skill of the physician, and is a wonderful aid to medicine. When a doctor finds himself unwelcome, his presence hardly endured, it were better for both patient and himself to leave; but if, on the other hand, his visits are eagerly looked for, what an aid are his cheery words and looks! His assurance that the palpitation is not heart disease, that the sediment of urates is not Bright's but the lack of the nightly glass of water, that urticaria is not a blood disease, and that fevers have certain courses and limits, will be the judicious application of mental therapeutics. Cancer, cataract, sarcoma, empyema, cirrhosis of liver, locomotor ataxia, inversion of uterus, gummata, cleft palate, etc., though they can be helped by medical or surgical means, are beyond the limits of mental therapeutics either of the regular physician or of our bandage woman. If those persons

who learn the whole art of healing in from one to two weeks would study three years in anatomy, physiology, etc., they would not make such exhibitions, or, rather, guys of themselves, as to promise to cure incurable diseases, or deny the existence of disease while they are seeking to cure it.

F. O. Donohue, M. D.—Antiseptics in Midwifery. Every doctor must necessarily be more or less of an obstetrician. The theory of Lister that infection is due to the introduction of germs into the system through cuts and wounds has made a great change in this branch. Formerly it was safer for a woman to be confined in a hovel than in the best appointed hospital. Now all this is changed. In Germany the use of antiseptics is compelled by law. At every confinement a midwife must be present, and she must be proficient in the antiseptic methods. In former days, the mortality was 50 to 100 in 1,000. Semelweiss noticed that those confined before entering the wards recovered, while the long protracted cases were always fatal. About this time a student died from a dissection wound. The symptoms were the same as occurred in those cases which terminated fatally in the puerperal ward. He here traced the aetiology of puerperal fever to infection. Simpson compared the inside of a uterus after labour to the stump of an amputated leg. He used chloroform during labour, and had his bust placed in Westminster. The way puerperal fever followed certain doctors, while those confined unattended escaped, also drew attention to infection. Antiseptics in obstetrics really means the utmost cleanliness. Hands are to be first cleaned of contamination, and then rendered antiseptic. Mercurials in the lying-in room are dangerous. To wash out the vagina with a mercurial wash after normal labour is not the thing, but should be done after the use of instruments or when the hand has been introduced. In the third stage it is important that all débris, clots, and placenta be removed, and the vagina cleansed with sterilised water.

Dr. Brooks. I wish to state that in private practice it is not so much antisepticism as asepticism.

F. W. Sears, M. D.—The Significance of Albuminuria occurring during Pregnancy. Albuminuria is now regarded a less serious symptom than it was formerly. It occurs in from three to five per cent. of pregnancies. It is very often due to other causes than renal disease. Examination of urine. Allow it to stand some hours, not days, and examine the sediment. Filter. If necessary, acidify with a few drops of acetic acid: a white cloud indicates mucus or albumen. If albumen, it will remain or increase by addition of a few drops of nitric acid. If of renal origin, indicates kidney affection, and apt to have retention of urea. The most common affection is acute nephritis. There is an increased supply of blood, diapedesis of corpuscles, tubules become blocked, casts and albumen appear in urine, and have finally anasarca, swelling of eyelids and wrists. Aetiology; thought to be the streptococcus. Has been

experimentally treated with chloroform drops x – xv t. i. d., causing the complete disappearance of the albumen. The indications for treatment are,—relieve congestion, cut off supply of urea, wash out the tubules, give rest to kidney, and remove the cause by removing the foetus. The danger arises from retention of urea. Stimulate the kidney by diuretics. Have two drugs which are theoretically and clinically of value. They are digitalis and acetate of potash. The former is especially good for its action on the heart, as this disease is usually complicated with cardiac disease.

Case I. Mrs. A., 26 years, pregnant. Poor health for years. Has 3 children. Waxy face, oedematous, feet so swollen that she can wear no stockings. Urine scanty, 1030; albumen, casts. Cough and valvular lesions. Expectorant mixture and the above drugs were given. Gradual and permanent improvement, urine down to 1020, child delivered, but lived only one month.

Case II. Mrs. B., 29 years. Has miscarried, five months pregnant, ten days ago caught cold. Anasarca, swollen legs, scanty urine, specific gravity 1034, albumen. Same treatment as case I. Improved rapidly, but could get no quickening. In a few weeks delivered a decomposed foetus. Nine months later again seen. Was then four months pregnant. Given the same treatment, and again delivered of a dead foetus. Thirteen months later again seen: was pregnant. Received the same treatment, and was delivered of the third foetus.

Case III. Woman 26, bloated, took cold hanging out clothes, oedematous, pits on pressure. Suffers much pain from oedema of the vulva. Urine scanty, specific gravity 1034, albumen. I punctured the vulva in several places, and urged termination of the pregnancy. Later in the night she began to vomit. Went for assistance and instruments, and when returned the patient was in convulsions. Gave chloroform, and ruptured the membranes. Applied dry cups to loins. In the morning death seemed certain. However, she made a good recovery, although under chloroform thirty hours. The first cases show the benefit that can be derived from medicine, while the last one shows the danger of delay.

Dr. F. O. Donohue. This condition is important, because apt to be met at any time. There is nothing more troublesome or puzzling than to know what to do when this occurs in the seventh or eighth month of pregnancy. Sometimes good recoveries with little or no treatment, again fatal in spite of all we can do. The treatment must depend on the individual case. However, when we find large amount of albumen, scanty urine, dropsy, and dimness of vision, the best treatment is to terminate the gestation.

O. M. Alaben, M. D.—Complicated Retention of Urine. Case: Laborer, 32 years. Always good health. The morning before being called, another doctor had drawn off a pint of water with no difficulty,

but now failed, as did my efforts in trying to pass the catheter. We then injected warm water into the rectum, which was followed by flow of about a gill of urine. In this manner the bladder was emptied from time to time, but with no abatement of symptoms, which were vomiting and tumefaction of the bowels, with no fluctuation but some tenderness and pain, weak pulse, and anxious expression. Hypodermic injections were used. Ten days later an entrance was effected into the bladder, and about a gill of urine drawn. However, the patient died the next day. On post mortem, when pelvis was exposed, nothing of the bladder could be seen, but on passing a sound it was found to be attached by its anterior wall to the pubic bones. No prominence or other sign served to indicate its location. The viscus was much bent on itself. As no cause could be found here for the symptoms, the abdomen was examined, and about four inches of ileum where it unites with the colon was found gangrenous. Here was the trouble, the urinary difficulties being only a symptom, but of such severity as to mask the original disease. Having been called in consultation, I knew nothing of the following facts in the previous history until after the post mortem. In December, 1889, the patient was very costive, then he had great pain in the bowels. The doctor was called, who pronounced it colic, and gave him an anodyne and a physic. This gave him such relief that he returned to his work, but only for a day or so. The attack came on again, and he had been costive ever since. Had been able to work a little at various times until in March, when he had retention and the symptoms as described.

J. G. ORTON, *President.*
NATHAN JACOBSON, *Secretary.*

PROCEEDINGS OF THE EXECUTIVE COMMITTEE OF THE THIRD DISTRICT BRANCH.

The meeting was called to order by Dr. J. G. Orton, at the residence of Dr. Nathan Jacobson, on the evening of June 18, 1890.

Present—Drs. J. G. Orton, H. O. Jewett, William H. Fitch, F. O. Donohue, H. L. Elsner, Nathan Jacobson.

On motion of Dr. Donohue an assessment of one dollar was imposed upon each member of the Branch, to defray the expenses of the annual meeting.

A letter was received from Dr. E. D. Ferguson, secretary of the State Association, containing a list of Fellows who were delinquent in payment of dues to the State Association. On motion, the names of the delinquents in each county were referred to the member of the Executive Committee of that county, with the request that he personally investigate

each case, and report the result of his investigations to the secretary of the State Association.

The following bills were audited: Lyman Bros., $8.50; the secretary of the branch, $7 for postage.

Letters regretting their inability to attend the meeting were received from Drs. B. A. Church, of Otsego, and W. L. Ayer, of Tioga.

On motion, the following committees were appointed for the annual meeting of the Branch:

Reception—Drs. F. O. Donohue, Ely Van de Warker, and F. H. Stephenson, of Onondaga.

Registration—Drs. L. J. Brooks, Chenango, C. W. Green, Broome, and A. D. Head, Onondaga.

Business—Drs. C. W. Brown, Chemung, F. W. Putnam, Broome, W. L. Ayer, Tioga.

Dr. Donohue moved that Dr. J. C. Shoudy be engaged as reporter of the proceedings of the annual meeting, at five dollars salary.

Dr. Elsner moved that the time for reading each paper be limited to twenty minutes, and that of each participant in discussion of the same to five minutes.

Dr. Jacobson moved that the selection of officers of the Branch Association and place of next meeting be referred to the general meeting of the Branch Association.

Adjourned.

NATHAN JACOBSON, *Secretary.*

FOURTH DISTRICT BRANCH.

The sixth annual meeting of the Fourth District Branch was held in the parlors of the Iroquois hotel, Buffalo, May 13, 1890.

President Dr. E. M. Moore, Jr., of Rochester, was unavoidably absent, and at 10:45 A. M. the meeting was called to order by the Secretary.

Upon motion, Dr. Alvin A. Hubbell was elected President *pro tem.*

The minutes of the previous meeting were read and approved.

Dr. Thornton reported for the Committee of Arrangements that two sessions would be held, one in the morning and one in the afternoon, and that the Association were indebted to the courtesy of the proprietors of the Iroquois, Messrs. Woolley & Gerrans, for the use of the very pleasant and commodious parlors in which the meetings would be held.

The Treasurer presented his annual report, showing,—Receipts: Balance of funds 1888–'89, $34.38; Assessments, $7.50. Expenditures, $12.15. Balance in treasury, $29.73.

The report was referred to an Auditing Committee, and, there being no objection, it was approved.

Under the head of scientific business, Dr. Judson B. Andrews presented "A Report of a Medico-Legal Case."

The paper was discussed by Drs. Buckley, Moore, Lynde, Cronyn, Phelps, Chittenden, and the author.

Dr. Henry D. Ingraham presented a paper upon "Vaginal Hysterotomy."

The paper was discussed at length by Dr. Wm. S. Tremaine, and by Drs. Hayd and Richmond.

Upon motion of Dr. Briggs, it was voted that when we adjourn, we adjourn to 1:30 P. M.

The Treasurer suggested that instead of making an annual assessment of fifty cents, as was formerly done, an assessment of one dollar be levied, which would cover the ordinary expenses for two years.

Upon motion of Dr. Briggs, it was voted that the recommendation of the Treasurer be adopted, and that an assessment of one dollar be made upon each member of the Branch to meet the expenses of the Branch.

The President announced that the Fellows present from each county should appoint one member of the Nominating Committee.

Adjourned to 1:30 P. M.

AFTERNOON SESSION.

The meeting was called to order at 2:10 P. M. by Dr. Hubbell.

Dr. Hubbell announced that besides the papers on the programme, con-

tributions were promised from Drs. E. M. Moore, U. C. Lynde, M. Hartwig, and S. T. Clark.

The paper next in order was presented by Dr. Geo. E. Fell, of Buffalo, "Electro-Execution."

Upon motion of Dr. Fell, it was voted that the remaining papers on the programme be read, and that the discussion, if there is time, come after the papers.

Dr. Nelson C. Richmond, of Fredonia, presented a paper on "Carcinoma of the Pancreas."

Dr. Wm. H. Heath, of Buffalo, presented a paper on "The Hot Springs of Arkansas, and Their Value in the Treatment of Syphilis."

The Nominating Committee reported in favour of the election of the following members of the Executive Committee for the ensuing year:

Alleghany County, Dr. Benjamin C. Wakeley.
Cattaraugus County, Dr. S. J. Mudge.
Chautauqua County, Dr. Nelson G. Richmond.
Erie County, Dr. Alvin A. Hubbell.
Genesee County, Dr. Wm. B. Sprague.
Livingston County, Dr. J. P. Brown.
Monroe County, Dr. R. M. Moore.
Niagara County, Dr. S. T. Clark.
Ontario County, Dr. J. H. Budd.
Orleans County, Dr. Wm. C. Bailey.
Steuben County, Dr. D. J. Chittenden.
Wayne County, Dr. Darwin Colvin.
Wyoming County, Dr. Z. J. Lusk.
Yates County, Dr. Wm. Oliver.

Upon motion of Dr. Thornton, the report of the Nominating Committee was adopted.

Dr. E. M. Moore, of Rochester, presented a paper on "Ununited Fractures."

Upon motion of Dr. Cronyn, it was voted that the chair have the power to limit the discussion on papers to five minutes.

Dr. Fell's paper was discussed by Dr. E. M. Moore.

Dr. Richmond's paper was discussed by Drs. Tremaine, Lynde, and Cronyn.

Dr. Heath's paper was discussed by Drs. Hayd, Lynde, and Chittenden.

Dr. Moore's paper was discussed by Drs. Lynde, Tremaine, and closed by the author.

Dr. Joseph C. Greene, of Buffalo, presented a paper on "Leprosy in Egypt."

The paper was discussed by Drs. Hayd, Cronyn, and Moore.

Dr. Hubbell congratulated the meeting upon the character of the papers presented and the value of the discussion. He invited voluntary communications from any present.

Dr. M. Hartwig presented a trocar of his own invention.

Upon motion, the meeting adjourned.

E. M. MOORE, JR., *President.*

WILLIAM H. THORNTON, *Secretary.*

FIFTH DISTRICT BRANCH.

The sixth Annual Meeting of this Branch was held in the upper lodge rooms of Wurzler's building, 315 Washington street, Brooklyn, on Tuesday, May 27, 1890.

The morning session was called to order by the President, Dr. Wm. McCollom, at 11:30 A. M.

The Secretary read the minutes of the last annual meeting and of the last special meeting, which were adopted.

The Report of the Committee of Arrangements was then read and approved.

The Secretary announced that Drs. Benton and Van Hoevenberg had been appointed by the President to act with the Secretary as Registration Committee.

The President then read his introductory remarks, which were ordered published.

PRESIDENT'S ADDRESS.

Fellows of the Fifth District Branch: By the grace of the Council of the New York State Medical Association I am the Vice-President and Chairman of the Fifth District Branch, and in performing the duties devolving upon me, I must beg your kind indulgence for any shortcomings and errors I may make.

It is with a sense of sadness and a deep feeling of sorrow to us, that the much lamented, kind, generous, and accomplished Dr. Eager, who would have presided at this meeting with grace and dignity had his life been spared, has joined the great majority. He was of noble nature, conscientious, and honourable. He was one of the first to become interested in the organisation,—the New York State Medical Association,—and to protest against a formulated license for professional relations with irregular practitioners, or to do anything to lower the standard or lessen the honour of the profession.

I think that he was a member of the Executive Committee of this Branch from its organisation until his death, and he was very faithful in his attendance upon, and in manifest interest in, the stated meetings.

Our loss in membership by death during the past year has been a grievous one.

The talented, the justly distinguished, the accomplished, genial, lovable Dr. Taylor, who so recently presided at the sessions of the State

Medical Association as well as at the meetings of the Fifth District Branch, we all remember with pleasure, and we all sorrow deeply in his death.

Dr. Webb, who lived so long and so well, and who was so widely known and honoured in the region of country where he lived, we shall hear more of, I trust, from his biographer, Dr. Wyckoff.

Dr. C. S. Wood, Dr. L. H. Sayre, Dr. G. V. Skiff, and Dr. G. H. Sutton, all highly esteemed Fellows, and all true to the best interest and honour of the profession, have gone before us. An effort has been made to have presented at this meeting a biographical sketch of each by Fellows who knew and loved them best. I hope the effort has been successful. We have a duty to the memory of the dead as well as to the living. And in our Association, so full of harmony and good feeling—a great brotherhood where bickerings and discord have not entered—the duty is but a labour of love.

We should avail ourselves of an occasion like the present—our annual meeting—to count our Fellows, and to pass in review the characters and qualities of our cherished associates who will meet with us no more. Let us not allow them to pass from among us without an affectionate retrospection.

The year passed since our last annual meeting has not been a specially eventful one as it relates to medicine and surgery. While a true and healthful progress has been made all along the line, we have nothing brilliant in surgical mechanism or methods, in therapeutical agents discovered, or chemical or medicinal products, to note with special mention.

Good scientific bacteriological work has been done, with resulting advance in aetiology; but we have to regret the fact that the progress in the treatment of disease has not been commensurate with increased knowledge of the cause. The discovery of the comma bacillus some years ago as a probable cause of tubercular development has not materially improved the methods of managing tuberculosis. Still, the study of bacteria and their products has aided materially the development of preventive medicine and the advancement of sanitary reform. Let us continue to hope, however, that better practical knowledge will obtain in the future from the real advance made in aetiology.

It is not my purpose to note the advances in the several branches of medicine and surgery, or to review the literature upon the subject for the year past, or to present any formal address upon medicine at this time, for I believe that it is for the best interest of this Association to proceed at once to the work which our very earnest and efficient Secretary has provided for us to do. To him should be given the credit in full for the soliciting of papers and arranging for the scientific work for the sessions of the day.

The effort to establish a permanent fund was inaugurated and pushed

to a successful issue by Dr. E. H. Squibb; and when we have enjoyed the social lunch to-day, provided from the income of the invested fund, and are not assessed for expenses for hall, printing, postage, etc., we shall appreciate the effort and bless the author.

There were no reports of delegates.

The annual report of the Executive Committee was next read as follows:

The Executive Committee begs leave to report that there has been only one meeting during the past year. Twice when called together a quorum was not present.

An apparent case of decided breach of etiquette was brought to the attention of the committee during the year, which, however, after looking more closely into the matter, was satisfactorily explained before formal charges were brought.

In regard to the funds of the Branch, as shown by the Treasurer's statement, there is now on hand $56.26 in the General Fund and $910 in the Permanent Fund, from which latter the interest alone is used. Your committee take considerable satisfaction in being able heartily to congratulate the Branch on having established our Permanent Fund on a substantial basis. It is not as large a fund as it was hoped might be raised; but by a fortunate series of circumstances the funds were judiciously placed, so that a substantial income was at once obtained, and is assured for the future. This makes a very good beginning, and will enable us to advance, though slowly at first. Your committee also are gratified in calling especial attention to the fact that the plan of this fund was started and accomplished during the term of office of our last President, Dr. W. T. Lusk.

Now that the fund has become definitely established, it is to be hoped that those who have hesitated up to this time (and there are many such among our Fellows) will at once join with us in its benefit. By looking closely into the workings of this scheme, it will be seen that it is greatly to the advantage of each Fellow in many ways to do his share in this matter, as he loses nothing in the end, but, on the other hand, avoids the small yearly assessment, and puts a moderate sum in a position to do the Association great good.

The minutes of the Executive Committee meetings of the year were then read.

This report was accepted and approved.

The Treasurer's report was then read and adopted. There was no special committee to report. No unfinished business.

The Secretary next announced officially that since the last annual meeting of the Branch there had been seven deaths among the Fellows of our District—three, *Founders* of our Association:

Dr. L. H. Sayre, of New York city.
Dr. I. E. Taylor, of New York city.
Dr. C. S. Wood, of New York city.

And four, *Original* Fellows:

Dr. W. B. Eager, of Middletown, Orange County.
Dr. G. V. Skiff, of New York city.
Dr. G. L. Sutton, of East Fishkill, Dutchess County.
Dr. Edwin Webb, of Hempstead, Queens County.

The biographical sketch of Isaac E. Taylor, M. D., was then read by Dr. John Shrady.

By special request, Dr. W. H. Thayer then read his paper on "Observations on Rheumatism, especially as involving the Tonsils." Published in *N. Y. Med. Journal*, Vol. LII, page 90.

Discussed by Dr. C. A. Leale.

The Nominating Committee was next chosen, by the Secretary's calling off the counties of the district in order, and the members present from each county naming the member for the committee. The following was the

Nominating Committee:

Dutchess County,	Dr. J. S. Bird.
Kings County,	Dr. N. W. Leighton.
New York County,	Dr. A. D. Ruggles.
Orange County,	None present.
Putnam County,	" "
Queens County,	Dr. E. G. Rave.
Richmond County,	Dr. F. U. Johnston.
Rockland County,	None present.
Suffolk County,	Dr. W. D. Woodend.
Sullivan County,	None present.
Ulster County,	Dr. H. Van Hoevenberg.
Westchester County,	Dr. H. E. Schmid.

This committee was notified to meet during the intermission.

Adjourned at 1:10 P. M. for lunch.

The afternoon session was called to order by the President at 2:05 P. M.

Dr. C. A. Leale read his biographical sketch of C. S. Wood, M. D.

The following biographical sketches were read by title:

Dr. G. C. Arnold's	sketch of	L. H. Sayre, M. D.
Dr. M. C. Conner's	"	W. B. Eager, M. D.
Dr. W. T. White's	"	G. V. Skiff, M. D.
Mr. A. B. Smith's	"	G. L. Sutton, M. D.
Dr. R. M. Wyckoff's	"	Edwin Webb, M. D.

Dr. H. E. Schmid then read his paper on "Some Personal Observations upon the History and Claims of Hypnotism, and its Employment in certain Diseased Conditions." (See Index.)

Discussion by Drs. Truax, Leale, McGillicuddy, and closed by the author.

Dr. G. T. Harrison next read his paper on "Ectopic Gestation, especially with reference to Diagnosis and Therapeutics." Published in *Gaillard's Medical Journal*, Vol. LI, page 14.

Discussion by the chair and Dr. McGillicuddy, and closed by the author.

Dr. J. W. Gleitsmann then read his paper on "Surgical Treatment of Cough in Diseases of the Upper Air Passages, with demonstration of Instruments and Specimens." Published in *Brooklyn Medical Journal.*

The paper was accompanied with a number of pathological specimens, the result of the operations, and also a number of the surgical appliances used.

Discussion by Dr. T. H. Manley, and closed by the author.

As Dr. C. E. Denison was not present to read his promised "Clinical Notes," Dr. T. H. Manley brought forward four patients to show the results he had obtained in treating them for hernia by the McBurney method. The oldest of the patients was an elderly man, and the youngest a baby in its mother's arms. Dr. Manley explained the cases fully, and considerable interest was manifested among the Fellows present, all making critical examination.

The report of the Nominating Committee was then in order. They had organized with Dr. Johnston as Chairman and Dr. Ruggles as Secretary. They made the following report:

For members of the Executive Committee to represent,—

Dutchess County,	Dr. J. G. Porteous.
Kings County,	Dr. W. G. Russell.
New York County,	Dr. John Shrady.
Orange County,	Dr. J. H. Hunt.
Putnam County,	Dr. Wm. Young.
Queens County,	Dr. E. G. Rave.
Richmond County,	Dr. F. U. Johnston.
Rockland County,	Dr. Wm. Govan.
Suffolk County,	Dr. W. D. Woodend.
Sullivan County,	Dr. T. W. Bennett.
Ulster County,	Dr. H. Van Hoevenberg.
Westchester County,	Dr. H. E. Schmid.

On motion, the report was accepted and approved, and the committee discharged.

According to the By-Laws, the President called for a meeting of this

new committee to elect a Secretary for the ensuing year, but it was seen that there was no quorum. The present Secretary therefore holds over.

The meeting then adjourned at 5 P. M. to meet next in Kingston on the fourth Tuesday in July.

The register showed thirty-nine Fellows, six delegates from the Kings County Medical Association, and five guests present.

E. H. SQUIBB, *Secretary.*

The eighth special meeting of the Fifth District Branch was held in the Court House, Kingston, on Tuesday, July 22, 1890.

The meeting was called to order in open session by the President, Dr. McCollom, at 12:55 P. M.

The Secretary made the request that all present should sign the register, both Fellows and guests.

The scientific business was immediately taken up by Dr. T. H. Manley reading his paper on "A Practical Study of the Region of the Spine, and Pathological Changes occasioned in it by Traumatisms." Published in *Gaillard's Medical Journal*, Vol. LI, page 205.

As the paper was very long, Dr. Manley only read the clinical part. The President made a few remarks in regard to the paper, and stated that discussion would be asked later if time permitted.

The Secretary gave notice that all the papers of this meeting would appear in print in the Medical Journals.

Dr. J. G. Porteous next read his paper, "A Strange Case." Published in *Gaillard's Medical Journal*, Vol. LI, page 228.

Discussed by Dr. Manley.

Dr. J. D. Sullivan then read his paper, report of a case of "Acute Purulent Pleurisy: Pleurotomy, followed by rapid Recovery." Published in *New York Medical Journal*, Vol. LII, page 294.

The President made a few remarks on the interest of the case, and it was further discussed by Dr. Manley.

Discussion on Dr. Manley's paper was then called for; but as none was had, the Secretary stated that an executive session would not be required unless the meeting so ordered. There had been no meeting of the Executive Committee, as there was no immediate business to come before them, and therefore a meeting had not been called. The Secretary, however, reported that he had received the notice of the sixth annual meeting of the Second District Branch to be held on June 24, at Catskill. There were to be twelve papers read, all of them of considerable interest.

After the President had made a few remarks in the way of a cordial invitation to all present to join in the proposed excursion up to the Kaaterskill hotel, the meeting adjourned at 1:55 P. M. to meet at the seventh annual meeting in Brooklyn, on the fourth Tuesday in May, 1891, as provided by the Constitution.

The register showed thirteen Fellows and five guests to be present.

WM. McCOLLOM, *President.*
E. H. SQUIBB, *Secretary.*

PROCEEDINGS OF THE EXECUTIVE COMMITTEE OF THE FIFTH DISTRICT BRANCH.

A meeting of the Executive Committee was held at 315 Washington street, Brooklyn, on Tuesday, May 27, 1890.

The President, Dr. Wm. McCollom, called the meeting to order at 10:35 A. M.

Five members present; nine absent. Present:

Dr. McCollom.
Dr. Johnston.
Dr. Van Hoevenberg.
Dr. Woodend.
Dr. Squibb.

The Secretary read the minutes of the last meeting, which were adopted.

The Committee of Arrangements for this meeting then made the following report:

NEW YORK STATE MEDICAL ASSOCIATION.

FIFTH DISTRICT BRANCH.

P. O. Box 94, Brooklyn.

Report of the Committee of Arrangements for the Annual Meeting, 1890.

The undersigned, as your Committee of Arrangements, respectfully submit the following report:

The favourable experience of our local affiliating Association in the use of the upper lodge rooms in Wurzler's building, 315 Washington street, for the past year, has led your Committee to select the same suite of rooms for this present meeting for the sum of $10.

As the income from our Permanent Fund, which was established at our last meeting, is now available, the Committee are able to furnish a substantial lunch in a moderate way for this its first year.

After obtaining estimates, it was decided to accept the services of Mr. P. Maresi to cater for this meeting.

The hour of 11 A. M. was fixed for opening the morning session.

Respectfully submitted:

J. D. RUSHMORE, M. D., *Chairman.*
J. C. BIERWIRTH, M. D.
N. W. LEIGHTON, M. D.
WM. McCOLLOM, M. D., } *Ex officio.*
E. H. SQUIBB, M. D., }
T. M. LLOYD, M. D.
WM. G. RUSSELL, M. D.

This was accepted and approved.

The President then appointed Dr. Van Hoevenberg, and one other later in the day, to act with the Secretary as Registration Committee.

The Secretary then offered the following:

Mr. President, I would move that the following minute be spread on the records of this committee, as a short account of the service of two of our number who have been taken from us by death, and as an expression of our warm appreciation of their past value to us and our great loss at this time,—Drs. Edwin Webb and William B. Eager, both Original Fellows.

Dr. Webb has represented Queens county on this committee since October 13, 1885; in fact there has been no one else representing that county since the organisation of the Association. Although he has not been able to attend the meetings on account of ill health, he has always expressed a warm interest in its detailed work, and several times has written to the committee through its Secretary for accounts of its proceedings as well as those of the general meetings.

Dr. Eager has represented Orange county in this committee as long as Dr. Webb has Queens. He was finally appointed as President of our Branch at the last State annual meeting. He has been absent from only five out of the twelve meetings we have had of our Branch, and his advice has been of great service to us at all times. He was always ready to work for our good, and did marked service in urging others to join us from his neighbourhood.

This committee, therefore, puts on record this their small, but no less sincere, tribute to the worth of these two Fellows.

The Treasurer then read his annual statement as follows, presenting his cash-book and vouchers, and the President appointed Dr. Johnston to audit the accounts:

TREASURER'S ANNUAL STATEMENT, MAY 28, 1889, TO MAY 26, 1890.

Fifth District Branch New York Medical Association, with
E. H. Squibb, Treasurer.

To balance cash as per statement May 28, 1889, . . .	$33.07	
Assessments collected, ...	29.00	
Interest collected, ...	51.89	
		$113.96
By postage and stationery, ...	$16.45	
By printing, ...	11.25	
By part of the deposit withdrawn from savings-bank and transferred to Permanent Fund account, . . .	30.00	
Balance cash on hand, ...	56.26	
		$113.96

PERMANENT FUND ACCOUNT.

To part of the deposit withdrawn from savings-bank and transferred to this account, ...	$30.00	
To contributions to fund to date, ...	880.00	
		$910.00
By railroad bonds (5% interest), ...	$830.00	
Balance cash on hand, ...	80.00	
		$910.00

The subject of the next meeting was next brought up, and after some little discussion by the members present and an urgent appeal from Dr. Van Hoevenberg, it was decided to hold the next meeting—the eighth special—in Kingston, on the fourth Tuesday in July next (22d), and the following Committee of Arrangements were chosen:

Dr. H. Van Hoevenberg, Chairman.
Dr. Jacob Chambers.
Dr. F. Hühne.

Under the head of Unfinished Business, the Secretary read the resignation of Dr. T. J. Kearney, of New York city. This had been in the Secretary's hands for some time; but as there had been no meeting, it could not be brought forward earlier.

The Secretary stated that the following had been sent to each member of the committee on March 1, to be voted on by mail:

"Whereas, The Executive Committee failed to appoint a Committee of Arrangements for the sixth annual meeting, to be held in Brooklyn on Tuesday, May 27, 1890,—be it

Resolved, That the following Fellows be appointed as such Committee:

Dr. J. D. Rushmore, Chairman.
Dr. J. C. Bierwirth.
Dr. T. M. Lloyd.
Dr. N. W. Leighton.
Dr. W. G. Russell.

The result of the vote was,—eleven affirmative (two members deceased, and one abroad).

The Secretary called attention to the fact that there had been no meeting of the committee to elect a Secretary for the past year, and he had therefore held over.

Under New Business, the names of the following list of delegates from the Kings County Medical Association were read:

Dr. L. A. W. Alleman.
Dr. John Cooper.
Dr. H. R. Price.
Dr. F. C. Raynor.
Dr. J. C. Vanderveer.
Dr. B. F. Fessenden.

They were extended a hearty welcome, and were invited to all the privileges of the meeting.

It was decided to make the same arrangements about the publication of the papers read as was made last year, which was, that the authors be allowed to choose the journal for publication, and that the Executive Committee through its Secretary follow up such publication until properly accomplished.

The Secretary was directed to make the annual assessment of $1, and send out bills accordingly to all Fellows who have not joined in the Permanent Fund, with printed slips attached inviting all to join in such fund voluntarily.

Upon motion, the seven Fellows who have very recently joined were exempted from assessment for the ensuing year.

Dr. Johnston here made a report on the Treasurer's accounts as finding them correct, and, upon motion, the report was approved.

The Secretary then brought up an apparent breach of etiquette which happened during the year. The complainant's letter was read, as also a letter from Dr. Ferguson, Secretary of the State Association, in answer to one from the Secretary asking which Association had jurisdiction. The Secretary stated that he had visited the defendant, and after stating the case plainly as far as the complainant saw it, the defendant explained that the greater part of the trouble was due to the distorted construction of the defendant's words and sentences by the markedly hysterical patient in question. That he, the defendant, was very sorry the matter had taken this unfortunate and altogether uncalled-for turn, and that he would be willing to meet this committee alone or in the presence of the patient, and have the matter adjusted to the satisfaction of all. The Secretary then saw the complainant and explained what had occurred as above, whereupon he decided to let the matter drop where it was, provided this committee thought proper.

After some discussion, it was decided to drop the matter after an announcement had been made in blank to the general meeting that such a case had come under its notice and had received thoughtful attention, that the defendant might see what notice had been taken, and act accordingly for the future.

The annual report of this committee to the general meeting was next read and approved, and the committee adjourned at 11:10 A. M.

E. H. SQUIBB, *Secretary.*

NEW YORK COUNTY MEDICAL ASSOCIATION.

ANNUAL REPORT.

As President, the duty devolved upon me of furnishing an abstract of the proceedings of the New York County Medical Association for the year beginning October, 1889. The nine stated meetings were duly held, and at every one of them one or more interesting and instructive papers were read. In a number of instances the discussion evoked by a paper was animated, and followed with absorbing interest on the part of a large and appreciative audience. Some of the papers read were of the very highest order as scientific contributions. The increased attendance upon the meetings is the best proof that can be offered of the continued interest of the members in the success of the Association. After each meeting the usual collation was served, with the happy effect of bringing the members more closely together in social converse. At the last annual report the number of members amounted to 337. In June the number had increased to 523.

STATED MEETING, OCTOBER 21, 1889.

The President, Dr. C. S. Wood, in the chair.

Dr. John Shrady read a memoir of the late Dr. Alexander B. Mott, characterised by his usual felicity of matter and style.

IN MEMORIAM.

Alexander Brown Mott.

By John W. Shrady, M.D.

Alexander Brown Mott, who was born in New York city, 25 Park place, March 31, 1826, was the fourth son and fifth child of Dr. Valentine Mott and Louisa Dunmore Munn. His grandfather, Dr. Henry Mott, a native of Hempstead, L. I., and descended from Adam Mott, was born in 1757; he was a pupil of Dr. Samuel Bard, and a New York practitioner for many years, dying at the age of eighty-three. Valentine, an elder brother, and also a physician of rising reputation, died from yellow-fever in the prime of life. Dr. Valentine Seaman, so well known in our local annals, was also a remote relative of the family, all of whom belonged to the Society of Friends, or, as they are generally known, Quakers.

Following up the doctor's career in chronological order, his first preceptor was William Darling, then a tutor in his father's family, afterwards the erudite Professor of Anatomy in the University Medical College. Next came the thorough course of the Columbia College grammar school, of which Prof. Charles Anthon was the rector. This brought him up to 1836, when, during the European sojourn of his family until 1841, he enjoyed the privileges of the best masters. On his return to his native city, a desire to adopt the military profession turned his attention to West Point, which project, however, was abandoned after a short course of instruction under Lieut. Wayne, who was connected with that famous institution.

During the autumn of 1842 the subject of this sketch again went abroad, passed nearly a year upon the continent, principally in Germany and France, in the meantime accepting a position of trust in the Naval Agency, Marseilles. In the summer of 1844 he accompanied Commodore Morris, U. S. N., in command of the Mediterranean squadron, as his private secretary. Becoming identified with one of the Spanish revolutions, he found himself in command of a battery, and, as a plucky leader at the siege of Barcelona, which surrendered after a three days engagement, he was obliged to flee the country. Penniless, he worked his passage to Marseilles, where he formed a business connection which enabled him to visit Piedmont, Austria, and Italy—all during the year 1845.

Most of 1846 he spent in Havre, France, in the study of medicine under the direction of a friend, using what time might be spared from mercantile pursuits; but not until the future doctor's return to New York in 1847 was there any real systematic effort,—not before a formal entrance into his father's office and matriculation at the University Medical College. He afterwards took the course of the Vermont Academy of Medicine in Castleton, where he was graduated in 1850. He immediately began to practice in New York, but at the same time he continued his studies, attending lectures in the New York Medical College. This institution granted him a diploma in 1851, he being one of the thirteen who constituted the first class of graduates. From being a busy aid to his father in his multifarious duties, he gradually developed many philanthropic plans of his own, for even while yet a student he is credited with helping to organise the St. Vincent's hospital, of which he was for a long time one of the attending surgeons. At the founding of the "Jews," now "Mt. Sinai," hospital, he was appointed Senior Attending Surgeon, and so continued until 1863, when he resigned. In 1859 he was appointed Attending Surgeon to Bellevue hospital, and was somewhat later quite active in the organisation of the college which has reflected so much lustre upon the institution which suggested its name. As its Professor of Surgical Anatomy he did most excellent work, and gradually improved himself in extemporaneous discourse, but never to the extent of over-

burdening his words with rhetoric at the expense of clearness or exactness of statement. He was terse and emphatic, but never ornamental.

In April, 1861, when President Lincoln made his first call for troops, Dr. Mott, as surgeon to the Second Brigade New York State Militia, received orders, and after two hours' notice was ready to go to Washington with his command. His sense of responsibility compelled him to weed out the druggists and mechanics who filled the position of regimental surgeons and assistants. Well qualified physicians, equipped with the proper appliances and instructed in the duties of their new rank, at his instance filled the vacancies. When on the eve of departure, however, he received a countermanding order, appointing him medical director *pro tem.* He was next ordered to inspect recruits, and is credited with labouring night and day, until thirty-eight New York regiments were sent to the field. Of those inspected he rejected twenty per cent. Those whose memories fail to recall this war epoch of the nation's history can but feebly appreciate the magnitude of this great work.

Dr. Mott persevered in his humanitarian work, becoming medical director in New York, and founding, with the help of a number of well known women, the United States Army General Hospital in New York. He was made surgeon in charge of this hospital, and received, on November 7, 1862, the commission of Surgeon of United States Volunteers, with the rank of Major. This grade, equivalent to that of the regular army grade, carried with it plenary administrative powers as regards hospital supervision and eligibility for appointments as medical directors, while it was understood to excuse from regimental duties in the field. About the end of 1864 he became medical inspector of the department of Virginia, and was attached to Gen. Edward O. C. Ord's staff. He was present at the memorable conference at Appomattox court-house on April 9, 1865, when the terms of General Lee's surrender were arranged, and, with the brevet rank of Colonel, was mustered out of service on July 27, 1865. He then resumed practice in New York.

Dr. Mott helped to found Bellevue Hospital Medical College. He was Professor of Surgical Anatomy there from its opening until 1872, after which he became Professor of Clinical and Operative Surgery. He performed many important operations, ligated most of the arteries, and, independently of his career of useful activity, his contributions to the advancement of medical science were such as will hand his name down to posterity.

In 1851, April 3, he married Miss Arabella, the youngest daughter of Thaddeus Phelps, by whom he had a son and a daughter, the latter dying at an early age. Dr. Mott's domestic life was an unusually happy one while his wife lived. After her death in Rome, in 1874, he gave his whole attention to his profession and to the affairs of the many societies of which he was a member.

He held a prominent place in the Century Club, and was president of the Mott Memorial Library, at No. 64 Madison avenue, and of the American Pasteur Institute. He was also a member of the County Medical Association, and was connected with all the important medical societies in the country. He belonged to the Protestant Episcopal Church, and took a great interest in Masonry, being Sovereign Grand Inspector-General of the Supreme Council (Cerneau Rite) and Puissant Lieutenant-Commander thereof for the United States and territories. He held under that body the thirty-third and last degree in the A. and A. Scottish Rite; was Most Illustrious Sovereign Grand Master-General 33°, 90°, 96°, of the A. and P. Rite and the Rite of Memphis. He was also Junior Vice-Commander of the Rice Post, G. A. R., a Companion of the Loyal Legion (N. Y. Commandery), a member of Holland Lodge, No. 8, F. and A. M., a Companion of Jerusalem Chapter, No. 8, R. A. M., and a Knight of St. John of Malta; also a Past Commander of the Adelphic Commandery, No. 59, of Knights Templar (mounted).

Dr. Mott died Sunday morning, August 11, 1889, at his country seat in Yonkers, of pneumonia, after a two days illness.

Few men in the profession were better known and appreciated than Alexander B. Mott; few had more sterling qualities or manly virtues; certainly none exceeded him in modesty or courtesy—always approachable and yet dignified, he impressed with a sense of latent power. "Born to the purple," and happily exempt from the necessities which beset the opening career of the aspirant after medical honours, he never presumed upon his advantages or cared to win any prize without honest competition. Nay more, he suffered somewhat in consequence of being overshadowed by his father's renown, and yet he was great in his own right. No one disparaged his achievements more than himself, and certainly no one toiled more conscientiously or did better work. As a thorough anatomist and a neat, elegant operator, he won a reputation whose lustre is not likely soon to be dimmed. Many possess, but none have deserved, a wider fame than he.

On motion, the following minute on the death of Dr. Mott was unanimously adopted:

In the death of Alexander B. Mott, the well maintained heritage of a name illustrious in the annals of surgery is transmitted to posterity with added memories of good work faithfully done. Self-reliant, ingenious in device, and exceptionally skilful in execution, his career exemplified the best attainment of his chosen art, and his departure leaves a vacancy long to be deplored. Sharing the grief of the whole profession which he adorned, this Association desires to record its special regret at the loss of a valued member, and its sympathy with those who mourn, not alone for the distinguished surgeon, but for the beloved relative or dear friend.

Dr. AUGUSTIN M. FERNANDEZ presented a specimen, with remarks on the birth of a "Double Foetus, united at the thorax and upper part of the abdomen."

Dr. GEORGE TUCKER HARRISON then read a paper on "Podalic Version in Contracted Pelvis." This was discussed by Drs. Leale, Shrady, McLeod, and Kucher.

At the stated meeting held on the 18th of November, 1889, the President, Dr. C. S. WOOD, in the chair, Dr. T. H. MANLEY presented two patients. The first was a man seventy-three years of age, upon whom he had successfully performed McBurney's operation for the radical cure of hernia on both sides. The second was a young man upon whom he had performed tracheotomy for the relief of difficulty of respiration incident to inflammation of the larynx and adjacent parts, resulting from an accident in which both wheels of an express wagon passed over the patient's neck. The cases were discussed by Drs. Von Donhoff and Harwood.

Dr. F. S. DENNIS was to have read a paper on the "Aetiology and Treatment of Hernia," but was prevented from being present by serious illness in his family. The subject was, however, discussed by Drs. Carroll, Manley, Von Donhoff, McLeod, and the President.

At the stated meeting held on the 16th of December, 1889, Dr. C. S. WOOD in the chair, Dr. VON BEVERHOUT THOMPSON read a suggestive paper entitled "Doctors' Prescriptions and Druggists' Mistakes," which was discussed by Drs. Truax, Meyer, and Daniel Brown.

The second paper of the evening was read by Dr. ALBERT SHUNK, on "Hypertrophy of the Turbinated Bones and Reflex Phenomena." In the discussion that followed, Drs. Hepburn and Gleitsmann participated, the author of the excellent paper closing the discussion.

Dr. I. W. GLEITSMANN presented a number of specimens of "Posterior Hypertrophy of the Inferior Turbinated Body," which had been removed by Jarvis's cold snare, and the cautery snare with irido-platinum wire.

The annual meeting was held January 20, 1890, the President, Dr. C. S. WOOD, occupying the chair.

Dr. JOHN SHRADY read an eloquent memoir of the late ISAAC E. TAYLOR, M. D. (See page 498.)

On motion, the following minute, prepared by a special committee consisting of Drs. Shrady, Carroll, and Truax, was unanimously adopted:

In the death of ISAAC E. TAYLOR this Association laments the loss of a wise counsellor and untiring supporter. While his professional attainments gave him public distinction, his private virtues endeared him to all who were admitted to his intimacy; and his associates, who knew not

only his unswerving devotion to the highest interests of scientific medicine, but his unvarying benevolence of disposition and generosity of thought and deed, mourn even more for the loved friend than for the eminent physician.

On motion, the following resolutions were adopted:

WHEREAS, It has pleased the Almighty Dispenser of Events to remove from our midst our associate, Dr. DAVID CLARK COCKS,—therefore be it

Resolved, That we recognised in him a faithful co-worker, in all things consistent, conscientious, and in promise of a brilliant future.

Resolved, That in intercourse with him we had learned to admire him, and cannot but deplore his untimely death, and we tender our consolations to his family and friends.

The following officers were elected:

President—CHARLES S. WOOD, M. D.

Vice-President—GEORGE TUCKER HARRISON, M. D.

Recording Secretary—P. BRYNBERG PORTER, M. D.

Corresponding and Statistical Secretary—A. D. RUGGLES, M. D.

Treasurer—JOHN H. HINTON, M. D.

Member of the Executive Committee for the term ending January, 1894—A. PALMER DUDLEY, M. D.

At the stated meeting February 17, 1890, in consequence of the untimely death of the President, Dr. CHARLES S. WOOD, the Vice-President succeeded to the office of President, and occupied the chair. He delivered the following

ADDRESS.

By a most lamentable event, the duty devolves upon me of appearing before you this evening as your presiding officer. Need I remind you what that event is? Your saddened countenances bear but too impressive evidence that its memory is present with you. Yes, CHARLES S. WOOD is no more, and in his death this Association has received an irreparable loss. But a month has passed since your suffrages called him to this Presidential chair for a second time. Few of you who then saw him imagined that you would never behold his noble and serene countenance again. He was urged by those bound to him by the closest ties of love and affection not to go to that meeting, as he was visibly failing in health, and symptoms of a threatening character had manifested themselves. But such was his devotion to the interest of this Association that he felt he must be present, cost what it would of personal sacrifice. With fond anticipations he looked forward to this occasion, when in his address he would tell you in eloquent terms what this Association had accomplished in the past twelve months, and in burning words would unfold his hopes and aspirations for its future welfare. But it was not to be: his work on earth was done.

The language which Carlisle applies to his father is singularly appropriate here. "As for the departed," he remarks, "we ought to say that he was taken home like a shock of corn, fully ripe." He "had finished the work that was given to him to do," and finished it (very greatly more than the most) as became a man. He was summoned, too, before he had ceased to be interesting, to be lovable. The words, also, which the great apostle applied to King David naturally suggest themselves: "For David, after he had served his own generation by the will of God, fell on sleep, and was laid unto his fathers." And well did our late associate serve his generation! If we follow his career from boyhood to its closing scenes, it will be found that he discharged the duties of life with rare fidelity. Whether we consider him as a scholar, teacher, surgeon in the field in war time, or "in piping times of peace" as active practitioner or presiding officer of a scientific body, alike in all circumstances he was industrious, faithful, and upright.

Dr. Wood had an eminently judicial mind, and this, with his extensive knowledge of parliamentary law, rendered him remarkably well qualified for the duties of a presiding officer. He was singularly free from all affectation, and had a healthy, well balanced mind. He was very decided in his convictions, and expressed his opinions fearlessly, but there was no bitterness in his judgments. With special predilection he devoted himself to the study of surgery, and physiology, and medical jurisprudence. He was not a voluminous writer, and the contributions to medical literature from his pen were of a practical character. He was a man of modesty and true dignity. Above all, religion was his polestar, and kept him true in all the distractions and vicissitudes of life.

In the noble words of Lord Bacon we may say, as applicable to him,— "He that dies in an earnest pursuit is like one that is wounded in hot blood, who, for the time, scarce feels the hurt; and therefore a mind fixed and bent upon somewhat that is good, doth avert the dolors of death; but above all, believe it the sweetest canticle is *Nunc dimittis*, when a man hath obtained worthy ends and expectations. Death hath this also, that it openeth the gate to good fame, and extinguisheth envy; *extinctus amabitur idem.* When dead the same person shall be beloved."

A retrospective glance at the work done by our Association during the past year affords abundant proof of gratifying progress. The report of the Corresponding and Statistical Secretary shows that there were two hundred and fifty-nine names on the roll one year ago. Six of these, during that time, removed from the county and State. Six others died. In this time we have added one hundred and eighty-three new members, making our roll number four hundred and thirty members at the end of the year. A number of excellent papers have been read before the Association within the past year, and the discussions upon them, as a rule, have been marked by thoroughness and earnestness. The large attend-

ance upon the meetings fully attests the interest of the Fellows. The report of the Treasurer, too, furnishes tangible proof in another way of the continued interest of the Fellows in the success of our organisation. Let not this success be an inducement to supineness, but, on the other hand, let it be an incitement to put forth greater effort to increase the power and usefulness of this Association. The ends to be achieved, if we keep in view the objects it is designed to attain, are surely high and noble, and should enlist our hearty support. In order to attain this, each individual member should feel it a point of honour to do what he may to promote its prosperity in a spirit of unselfish devotion.

It has been said that this is the age of gross materialism with the predominance of self, but every now and then the dull plane of selfish uniformity is illuminated by the lightning flash of some high and heroic deed which thrills the heart of humanity, showing in vivid light that self-sacrifice and self-denial in the interests of others still exist; and so may it be the good fortune of this Association that such a spirit among its members, if dormant now, shall be quickened into activity.

The Corresponding Secretary read a letter from Dr. Edward von Donhoff, who was to have read the paper of the evening, stating that he had been unexpectedly called to Europe.

On motion, the By-Laws were suspended, in order that the scientific business of the evening might be proceeded with.

Dr. T. H. Manley presented two patients upon whom he had recently operated. The first was an infant six months old, who had a testicle which had not descended into the scrotum. He opened the canal, and brought down and secured the testis, and the result was very satisfactory. This was the second case of the kind, he said, in which he had operated. The second patient was a young man who had received injuries of the head by the accidental explosion of a parlour rifle. The ball had entered near the left superciliary ridge, and an incision was made at this point. The ball, which was found just over the sphenoidal fissure, was extracted, and it was ascertained that the orbital plate of the frontal bone was shattered. Four or five fragments of bone were removed, but the eye was preserved, and the patient was then in a fair way of recovery.

Dr. Samuel E. Milliken read the paper of Dr. Von Donhoff on "The Radical Cure of Hernia," which was discussed in a masterly way by Drs. W. B. De Garmo, Charles McBurney, T. H. Manley, and A. P. Dudley. Dr. McBurney gave an added interest to his exposition by exhibiting a number of patients, in order to exemplify the results of his operations.

Dr. N. G. Bozeman gave a demonstration of a new apparatus for the continuous irrigation of deep cavities.

The Committee on Resolutions, Dr. ALFRED L. CARROLL, Chairman, presented a short biographical sketch of the late Dr. David C. Cocks, and also the following minute in regard to the death of Dr. Lewis Hall Sayre, which, on motion, was unanimously adopted:

The sadly sudden death of LEWIS HALL SAYRE enrolls another name on the memorable list of those who have nobly laid down their lives in devotion to the duties of our profession. In the very flower of early manhood, the brilliantly promising career opening before him is closed in this world by an act of self-sacrifice as heroic as aught that history tells of warlike prowess. The call to relieve another's suffering found him regardless of his own, and, thinking only of the good deed to be done, he perished in its unselfish doing. No greater meed of praise can earthly chronicler record, than that a man so honoured his high office as to give his life for it; no better assurance of the heavenly welcome to a good and faithful servant.

This Association, to the expression of its own grief at the loss of an Associate whose qualities of heart and mind commanded affection and respect, desires to add its profound sympathy with those who are bereaved of the son, brother, and husband in whom their love and pride were justly centred.

Dr. JOHN SHRADY presented the following resolutions, which were unanimously adopted:

Resolved, That by the death of our President, Dr. C. S. WOOD, our Association has been deprived of one of its earliest and most valued members; one whose constant presence rendered its labours more efficient, and whose counsel warned against many dangers.

Resolved, That his industry and zeal were always an example to us; that his contributions to the work of the Association were of a high order; and, further, that his deportment dignified its objects.

Resolved, That in tendering our condolences to his family we trust that their grief may be tempered with the remembrance of his many excellent traits and abundant virtues.

At the stated meeting held March 17, 1890, Dr. JAMES R. LEAMING read a highly suggestive paper on the "Immateriality of Life and Disease," which was discussed by Drs. Alfred L. Carroll, H. M. Biggs, Daniel Brown, and E. F. Brush, Dr. Leaming closing the discussion.

Dr. A. PALMER DUDLEY then read the report of "A Case of Extra-Uterine Pregnancy," with specimen. Laparotomy was performed, the gestation sac removed, and the patient recovered. Discussion by Drs. W. T. Lusk, J. E. Janvrin, and A. P. Dudley.

STATED MEETING, APRIL 21.

The first paper was read by Dr. WILLIAM T. LUSK, and was entitled "Recent Criticisms on the Credé Method of Placental Expression." The author, with rare force and ability, vindicated the utility of the Credé method. The paper was discussed by Drs. A. P. Dudley, Joseph Kucher, H. J. Boldt, S. B. W. McLeod, I. P. Oberndorfer, and Daniel Brown, and called forth divergent opinions. The discussion was closed by Dr. Lusk.

Dr. J. HERBERT CLAIBORNE, JR., read a most excellent and practical paper on "Pink Eye." It was discussed by Drs. Hepburn and Weeks, and the discussion closed by Dr. Claiborne.

On the 19th of May a stated meeting was held, and Dr. NATHAN BOZEMAN read an interesting paper on "McDowell's Operation of Ovariotomy by the Long Incision, during the first thirty-three years of its employment, with comments."

Dr. PAUL GIBIER read a paper on "Sensations Produced by the Anti-Hydrophobic or Pasteur Inoculations, as Described by Inoculated Subjects." This was discussed by Dr. H. M. Biggs.

Dr. LEONARD J. RAU presented the plaster cast of the hand of a patient upon whom he had operated for injuries received by an accident in a saw-mill.

The following resolution, offered by Dr. MCLEOD, was adopted:

WHEREAS, It is the opinion of many members of this Association that our organisation should be made more complete by assuming the status of an incorporation,—therefore be it

Resolved, That this meeting approves the proposition of the preamble, authorises the procuring of an act of incorporation, and refers the whole subject to the Executive Committee with power.

At the stated meeting held June 16, 1890, Dr. JOSEPH D. BRYANT read a paper entitled "Rupture of a Femoral Aneurism; Extravasation of Blood; Ligature of the Common Iliac; Death." It was discussed by Dr. A. P. Dudley.

Dr. T. M. BULL then read a paper on "Prescription of Exercise." Discussion by Drs. J. Gardner Smith, Frank H. Bartlett, L. Ettinger, and Alfred L. Carroll.

Dr. J. G. TRUAX presented the specimens from a case of "Puerperal Septicaemia," due to retention of a portion of placenta, with marked nephritis and hepatitis, with metastatic abscesses, and diphtheritic exudation in the larynx.

In accordance with the vote cast May 19, 1890, the New York County Medical Association was incorporated on the 30th day of June, 1890.

GEORGE TUCKER HARRISON, M. D.,
President.

PROCEEDINGS.

SEVENTH ANNUAL MEETING

OF THE

NEW YORK STATE MEDICAL ASSOCIATION,

HELD AT THE MOTT MEMORIAL HALL, 64 MADISON AVENUE, NEW YORK CITY, OCT. 22, 23, and 24, 1890.

FIRST DAY, WEDNESDAY, OCT. 22, 1890.
MORNING SESSION.

The meeting was called to order at 10.15 A. M., by the PRESIDENT, DR. JOHN G. ORTON, of Broome county.

The report of the Committee of Arrangements was presented by DR. JOHN G. TRUAX, Chairman; and upon motion, it was accepted. (See page 15.)

The annual report of the Council was read by the SECRETARY, and, upon motion, was accepted and adopted.

The annual report of the TREASURER was read by the SECRETARY, and, upon motion, was referred to a committee of three. (See minutes of the Council.)

The SECRETARY announced the resignation of the TREASURER, DR. HINTON, and stated that he had been asked by the Council to act as TREASURER until this meeting of the Association. Upon motion, DR. HINTON'S resignation was accepted, and the SECRETARY appointed as TREASURER *pro tem.*

The SECRETARY moved that a committee of three be appointed as a "Committee on Legislation." Carried. (This committee was subsequently appointed by the PRESIDENT-ELECT, DR. STEPHEN SMITH, to consist of DRS. CARROLL, GOULEY, and E. M. MOORE; and, on motion, the PRESIDENT and SECRETARY were added to the Committee.)

The SECRETARY announced the appointment of the following Committee on Scientific Contributions:

DR. W. H. ROBB, First District.
DR. R. SELDEN, Second District.
DR. GEO. DOUGLAS, Third District.
DR. M. W. TOWNSEND, Fourth District.
DR. E. H. SQUIBB, Fifth District.

The SECRETARY moved the adoption of the following amendments to the constitution and by-laws, and they were adopted.

ADDITION TO ARTICLE II OF THE CONSTITUTION.

ARTICLE II, SEC. 11. The Council may create a Retired List of Fellows, who shall be exempt from the payment of dues and assessments, but shall pay for the Volumes of Transactions when they shall wish to receive them. This List shall include those Fellows in regular standing, who, by reason of age or infirmity, have ceased to practise medicine or surgery, and who may wish to be entered thereon.

ADDITION TO ARTICLE VI, SEC. 1, OF THE BY-LAWS.

ARTICLE VI, SEC. 1 * * * * * In case of sickness or financial misfortune, the Council may remit or otherwise settle arrearages of dues when it is probable the beneficiary will be able to continue payments in the future.

The following additions to the Constitution were proposed:

ARTICLE II, SEC. 12. The Council may at any time appoint, as Fellows of the Association, physicians in good standing residing in other States, in the British Provinces, or in other neighbouring countries; provided that these physicians subscribe to the Code of Ethics of this Association; and provided that each candidate be endorsed by two members of the Council. Fellows so appointed shall be styled non-resident Fellows.

SEC. 13. Non-resident Fellows shall have all the privileges of resident Fellows, except that they shall not be eligible to any office in the Association, and that they shall not have the right to vote in the meetings of the Association. Non-resident Fellows shall not be required to pay any initiation fees; they shall not be subject to assessments; but they shall pay annual dues of five dollars; and receive, gratis, a copy of each year's Transactions of the Association.

The foregoing additions were laid over for one year under the rule.

The SECRETARY then moved the appointment of a Committee of three for Revision of the By-Laws, to report for adoption at the next annual meeting. Carried. The following were appointed:

Committee on Amendments to the Constitution and By-Laws.

DR. A. L. CARROLL,
DR. J. W. S. GOULEY,
DR. E. D. FERGUSON.

The PRESIDENT then read his annual address. (See p. 18.)

In accordance with the suggestion in the PRESIDENT'S address, the following resolutions were adopted:

Resolved, That the PRESIDENT of the New York State Medical Association appoint annually six Fellows of the Association as a Committee on Hygiene and Public Health, to carry out the second object of the Association, *i. e.*, "the Promotion of Public Health."

Resolved, That the PRESIDENT of the Association be, *ex officio*, a member of the Committee on Hygiene and Public Health.

Resolved, That the Committee on Hygiene and Public Health shall be charged (1) with the investigation of questions pertaining to sanitary science; and (2) with instruction of the people in the proper care of the individual, the household, and the community, by the frequent publication in the secular press and elsewhere of tracts on popular sanitary science; and that the Committee shall make an annual report to the Association.

The committee was subsequently appointed by the PRESIDENT, DR. STEPHEN SMITH, as follows: DRS. CARROLL, E. M. MOORE, J. G. HUNT, ORTON, VAN ZANDT, and CRONYN.

The SECRETARY announced that during the noon recess the members of the different Branches would meet to appoint members of the Nominating Committee.

AFTERNOON SESSION.

The meeting was called to order at 1.30 P. M., by the PRESIDENT.

The SECRETARY announced the appointment of the Nominating Committee, as follows:

Nominating Committee.

First District, DR. DOUGLAS AYRES, DR. C. M. KLOCK.
Second District, DR. A. T. VANVRANKEN, DR. ROBERT SELDEN.
Third District, DR. GEO. DOUGLAS, DR. GEO. D. BRADFORD.
Fourth District, DR. C. C. WYCKOFF, DR. M. W. TOWNSEND.
Fifth District, DR. E. S. F. ARNOLD, DR. J. G. TRUAX.
At large, DR. THOMAS WILSON.

The remainder of the afternoon session and the evening session were devoted to the reading and discussion of papers.

SECOND DAY, THURSDAY, OCT. 23, 1890.

MORNING SESSION.

The meeting was called to order at 10.15 A. M., by the PRESIDENT.

The SECRETARY announced that the following gentlemen had been appointed as a Committee to examine the accounts of the TREASURER: DRS. E. M. MOORE, D. COLVIN, and C. H. BURBECK.

Afternoon Session.

The meeting was called to order at 2 P. M., by the President.

The afternoon was devoted to the reading and discussion of papers.

Evening Session.

The meeting was called to order at 7.30, and having listened to the address on "Obstetrics," by Dr. C. C. Frederick, of Erie county, and an address on "The Medicine of the Classics," by Hon. Charles H. Truax, LL.D., of New York city, an adjournment was made to partake of a collation given by the Council, after a vote of thanks had been given Judge Truax for his address.

Third Day, Friday, Oct. 24, 1890.

Morning Session.

The meeting was called to order at 10.15 A. M., by the President.

The Secretary presented the report of the Nominating Committee, as follows:

Report of the Committee on Nominations.

For President: Stephen Smith, New York County.

For Vice-Presidents:

First District, Dr. Douglas Ayres, Montgomery County.
Second District, Dr. A. T. VanVranken, Albany County.
Third District, Dr. J. D. Tripp, Cayuga County.
Fourth District, Dr. Robert J. Menzie, Livingston County.

Members of the Council:

First District, Dr. W. D. Garlock, Herkimer County.
Second District, Dr. J. B. Harvie, Rensselaer County.
Third District, Dr. George Douglas, Chenango County.
Fourth District, Dr. Thomas D. Strong, Chautauqua County.
Fifth District, Dr. A. L. Carroll, New York County.

The committee make no nomination for the vacancy in the treasurership.

C. M. KLOCK, *Secretary.* E. S. F. ARNOLD, *Chairman.*

Upon motion, the Secretary was instructed to cast an affirmative ballot for the list of officers as read. The ballot was so cast, and the officers declared duly elected.

The Secretary presented the report of the committee appointed to examine the accounts of the Treasurer. The committee reported that

they had compared the bills with the vouchers for the same and found them to be correct. Upon motion, the report was accepted and the committee discharged.

Afternoon Session.

The meeting was called to order at 2 P. M., by the Vice-President, Dr. Douglas Ayres.

After the reading and discussion of the papers, the newly elected President was escorted to the chair, and introduced by the retiring President as follows:

Fellows of the Association: I take great pleasure in introducing to you the distinguished President-elect, Dr. Stephen Smith, of this city. May the success of this Association, which has been so marked in the past, be double and even four-fold in the future; and may we so strive to guard the trust committed to our care as to make this organisation the very embodiment of the honour, interests, and usefulness of the medical profession of the State of New York. I know that any shortcomings in the discharge of my official duties will be more than compensated by my able successor.

The President-elect then thanked the Association for the honour conferred on him, and promised an active interest in the discharge of his official duties.

After the appointment, by the President-elect, of Dr. S. B. Wylie McLeod, of New York county, as member of the Council at large, upon motion of the Secretary, the Seventh Annual Meeting of the Association was declared adjourned.

E. D. FERGUSON,
Secretary.

ANNUAL REPORT OF THE COUNCIL,

AND

MINUTES OF THE SESSIONS OF THE COUNCIL,

FOR THE YEAR 1890.

The Council met in annual session at its room in the Mott Memorial Library building, on Tuesday evening, October 21, 1890.

The meeting was called to order at 8:30 P. M. by the President.

Present: The chairman, Dr. John G. Orton, and Drs. Arnold, Ayres, Biggam, Carroll, Ferguson, Gouley, Harvie, Klock, McCollom, Truax, and Wilson.

The Secretary reported the following list of applicants as having been appointed Fellows by circular vote since the last meeting of the Council, viz.,—

George W. Goler, Ferdinand King, F. A. Baldwin, Valentine Mott, C. L. Dayton, Henry Lapp, R. C. Taber, Francis Augustus Burghardt, George W. McPherson, John J. Twohey, William C. Phelps, H. L. Hunt, Marcell Hartwig, George Rice, William A. Moore, F. P. Hough, LeRoy D. Farnham, Charles G. Currier, Robert C. Davis, Chauncey P. Biggs, T. J. McGillicuddy, George A. Ostrander, Clarence Thwing, Adolph Kessler, Charles McBurney, Theodore Dunham, John J. Ward, W. B. Huestis, Charles M. Magee, A. J. Campbell, John R. Flanigan, F. W. Sears, Ulysses H. Brown, C. E. Greenman, Nathan A. Caldwell,—35.

The following applicants, being duly accredited, were appointed Fellows, viz.,—

James W. Gurst, Milton M. Lamb, Frank L. Stone, William Waterworth, William E. Woodend, Chauncey G. Hubbard, Horatio Gilbert, Nelson E. Van Dusen, Andrew M. Crounse, Edward L. Lyons, Edward J. Bermingham, Augustin A. Arango, Ogden C. Ludlow, Henry M. Silver, Henry R. Price, Charles W. Piper, Frederick Porter Hammond, Louis F. Criado, Calvin Thayer Adams, Charles Phelps, Matthew D. Field, John T. Wheeler, George W. Vedder, R. Allen Woodruff,—24.

On motion, it was decided that Certificates of Fellowship shall bear the date of the application, and not the date of the appointment by the Council.

The following names were directed to be removed from the lists, in accordance with Article VI, Section 4, of the By-Laws, viz.,—

Frank D. Crim, Frank B. Darling, C. F. Keefe, S. F. McFarland, J. H. Price, S. D. Rhodes, Herman D. Ure, C. H. Woodward.

There were then presented the following

MEMORANDA FOR THE COUNCIL, BY THE SECRETARY.

At the last annual session of the Council the Secretary presented some memoranda relating to the objects and interests of the Association, together with such suggestions as his experience indicated, which, however, were not made a part of the minutes of the meeting of the Council.

In that way matters may be presented which might otherwise be overlooked; therefore it is thought expedient to present this year a similar report in a form to become a part of the minutes.

In many ways the year has been eventful, and important for the Association. Circumstances have made it possible securely and permanently to house our library, while at the same time the Association is provided with a home in the city of New York. By those who were not directly concerned in the administration of the affairs of the Association these facts will hardly be appreciated at their full importance. In the first place, we had in our charge a valuable collection of books—a collection gathered in a remarkably short period of time, of such a size and value as justly to entitle it to be called a library. It was, in every sense, a trust which we were in duty bound to keep; and yet, to provide for the care, usefulness, and future growth of the library involved responsibilities and difficulties which at times seemed insurmountable. In the first place, the collection of books was not eligibly situated in its quarters at the Carnegie Laboratory. It had grown beyond the capacity of the rooms in which it was placed, and, in addition, it seemed likely to be turned out of even that home by the need of the rooms for the work of the Laboratory. While we are grateful to the management of the Carnegie Laboratory for the privilege of having our library in their building when there seemed to be no other home for it, and at a small annual rental, there remained the fact that the location of the building and its principal use did not conduce to the bringing of the members of the Association to the library, and hence the library was neither fully appreciated nor utilised by the Fellows in general, as it should have been. It is probable that many have attended our annual meetings and have never seen the library. This is now corrected. The library is satisfactorily housed, and without expense to the Association aside from one hundred dollars each year, which is only a small contribution towards the current expenses incurred in caring for the building in which we are to hold our meetings and transact our business.

In this connection it is proper to state that the library has never received any money from the General Fund, aside from the annual rental at the Carnegie Laboratory and appropriations of something over two hundred dollars for binding, furniture, etc. It has grown, been cared for, and its fund created by gifts, bequests, and the personal work of Fellows of the Association. By reason of its present favourable quarters, its importance, size, and value will be apparent hereafter to all who attend our meetings. Its statistics will appear in the report of the director of the library.

Those of you who were present at our last annual meeting will recall my report and recommendations on arrearages of dues. I then considered the subject in connection with the work of the committee, appointed at the preceding annual meeting, and my own efforts by personal letters to the delinquents. The subject has continued to receive careful consideration at my hands during the past year. I have again devoted to it a large amount of personal labour, that I might ascertain in individual instances the reasons for the non-payment, and thereby be in a position to advise against any action that would be unjust or unwise, in hastily, prematurely, or otherwise improperly dropping names from our lists of Fellows. This investigation has resulted in the conclusion that certain names should now be dropped from the lists for refusal to pay arrearages, others should receive remission of dues on account of personal illness or financial misfortune, and still others should be continued on the lists till circumstances will allow the payment of arrearages. In no case should hasty or unadvised action be taken in dropping from the lists for non-payment of dues, for a number of instances were found where such a course would needlessly and unkindly have injured the feelings of worthy but unfortunate Fellows. When dues are remitted, it should be done, as suggested last year, by the joint action of the Treasurer and Secretary, and should appear in no record except on the books of the Treasurer and in the individual account of the beneficiary.

The arrangements initiated last year for a "Retired List" of those Fellows who may wish to be placed thereon, and who have ceased to practise by reason of age or infirmities, can be completed and put in operation at this annual meeting of the Association.

In this connection it is proper to state that the growth of the Association has been all that could be expected during the past year, and there is only wanting the active interest of all in securing additions to our numbers to require soon four figures to express the total of our Fellowship. It is hardly necessary to tell you that there is not the energy there should be in securing new members, and yet our lists now contain 750 names.

During the summer Dr. J. H. Hinton, who has so efficiently discharged the duties of the Treasurership, felt that the labour connected with his office was becoming too large for him to continue properly in that position; and he therefore, through me, resigned his office. At my request, he continued to discharge his official duties until the distribution of the volume of Transactions, about September 1. His withdrawal took from the Council a member with whom I have been very closely and intimately associated, both personally and officially, since the organisation of the Association, and I wish to bear testimony publicly to the painstaking accuracy and patience with which he has attended to his official duties and to the other interests of the Association. I did not call a meeting of the Council to consider his resignation, as it took effect so near the time of the annual meeting; and a special meeting of the Council is onerous to its members, and not to be called when it can be avoided. In my judgment, also, it was not a position to be filled by a "circular" vote. So, since September 1, I have been acting as Treasurer in receiving dues and paying current expenses; and I am happy to state that for the first time in four years, we have, on the day before the annual meeting, a balance in the General Fund to the credit of the Association, and all presented bills have been paid in full.

I must take this opportunity to urge again upon the Council a continuance of the policy of carefully guarding our expenditures so as to favour the growth of a general fund. This, however, should not, and need not, cause us to lower the standard of the work we have undertaken. I feel very strongly the importance of the creation of a respectable balance in the general fund, more particularly in view of what I deem to be the duty and the interest of the Association in the not very remote future, and that is the payment to the Treasurer and Secretary, each, a proper—even if modest—salary. Those who have never had occasion to discharge the duties connected with those offices will fail to realise the amount of work done and time consumed by those officers for the Association. Some of the work, too, seems unnecessary. Let me give an instance: Two or three hundred members neglect to pay their dues on the receipt of the first series of bills; and then, when a second series is issued, some will *forget that they forgot to pay*, and wonder if there is not a mistake; and, finally, a portion will write to the Treasurer about it,—and, as a result, there will be several hundred needless communications. This is no fancy sketch, and must be expected, for "such is human nature." The addresses on envelopes going from the office of the Secretary now reach several thousands each year, and many of those envelopes contain communications requiring thought and care in the composition.

The present incumbent of the Secretarial office will never accept a fee or salary for his official services, but he feels that the time is approaching when in justice to his private interests he must retire from his office.

It will be the duty of the Association to provide an annual compensation for his successor, with possibly some additional duties; and he believes that the indications favour the possibility of such an arrangement in the not very remote future.

Since the last annual meeting, a veritable surprise for the profession occurred in the passage of the Medical Examiners Act by the last legislature. So many schemes for medical legislation, including provisions for boards of medical examiners, have been presented in the legislature from session to session for a term of years, that it became somewhat arduous and tiresome to keep track of the proposed acts; and as scheme after scheme came to naught through what seemed to be irreconcilable, opposing, and constantly acting forces, it came to be accepted in advance that each bill would fail. The writer, however, endeavoured to keep in touch with the movement of affairs in the legislature so far as medical affairs were concerned, and arranged to have copies of medical bills sent to him, with the result that he waded through a mass of proposed laws, winter after winter, only to miss finally the very bill that passed,—the most objectionable of the series,—his correspondent having failed to send him the proposed act, or to notify him of its consideration in committee. There were brief notices of the bill in newspapers and medical journals, but silence at head-quarters, till, finally, in the grand rush at the close of the session, the bill went through. Fearing that such an event might have occurred, the writer sent a friend to the executive chamber soon after the adjournment of the legislature, and thereby learned the fact of the passage of the act, a copy of which he was permitted to make, as no printed copy could be found.

The bill was so manifestly inexpedient and unjust, that it seemed probable the governor would, on a representation of its defects, allow it to fail for want of his signature. But, to use all proper means to secure its defeat, letters were promptly sent to members of the Association throughout the state, requesting that opposition to the bill be made manifest to the governor; and the writer is informed that within three or four days thereafter the governor received between five and six hundred telegrams and letters from physicians in opposition to the bill. Under the rule that the governor will allow no personal hearing on any bill left in his hands on the adjournment of the legislature, nothing was left to the writer but the preparation and presentation of a brief, which he was assured would receive careful consideration. This he did: and he is informed that at least one other brief was presented in opposition to the bill by a Fellow of the Association from New York city. As is well known, the governor signed the bill: it became a law, and all the explanation the writer could secure in justification of the governor's action was, that he considered the bill as having been fully considered in com-

mittee, and "if Dr. Ferguson and his friends did not wish it to become a law they should have interested themselves in legislative affairs, and opposed it in committee. All that seemed left to him was to sign the bill, and then sign one repealing or modifying it if presented to him from the next legislature." Whether this is the true course to follow in legislative work, the writer will not undertake to discuss, though it is notorious that such has not been the uniform rule of the executive, notably in the case of the election bills. The writer's brief contained the fact that he had had no opportunity to be heard in committee, and, in all probability, the bill was not considered in any committee of the Senate.

Our future course in reference to this affair should be carefully considered. My own conclusion, in view of the demerits and injustice of the law, is, that a committee should be created to act in our behalf, and to endeavour to secure the repeal of the act, or to have it so far modified as to remove its injustice and one-sidedness.

The delay in the publication of the Transactions has been a source of regret to all the Fellows of the Association; but hasty criticism of the Committee on Publications, or of the editor, should be withheld, for the labour required is very great, and many causes conspired to produce delay. So far, we have had no occasion to feel ashamed of our volumes when they have appeared.

Believing, however, that my position as Secretary places me in a position to accomplish the work more rapidly, I have offered to edit the next volume, and I believe it is informally agreed that I shall do so. If not disappointed by the printer, the volume will be issued within three months from the close of the meeting; but in order to accomplish it I must receive the coöperation and support, in particular, of the writers of papers.

Quite a number of extra volumes have been printed at each edition of our Transactions; and though back volumes are sold each year, I am satisfied that the price at which they have been held ($2.50 per volume) is unjust to those who have recently joined and those who may hereafter join us. The cost of the first two editions was about $2 per volume, and since then it has been less than $1.50 per volume.

That the back volumes may be utilised, rather than to hold them for some possible greater demand, I would suggest that those Fellows in good standing who wish to secure back volumes may do so at $1 per volume, exclusive of transportation, but that those Fellows who wish extra copies of a current volume shall receive the same for $2 per volume, net. This distinction in the price of the volumes seems proper in view of the greater number annually required to supply the members, and the consequently smaller number left over.

A few words relative to the finances of the Association may not be amiss. By the reports of the late Treasurer and myself, which are submitted for inspection, it will be seen that at the last report there was a balance in the General Fund of $277.70, and that the receipts into the Treasury up to August 30, 1890, were $1,707.50, making a total of $1,985.20. Of this sum, $608.48 was disbursed by the Treasurer, and $1,376.72 was turned over to me on his retiring from his office. To this sum I have received additions to the amount of $287, and have paid out $1,298.87, leaving in my hands to the credit of the General Fund $364.85. This statement is made from the accounts as they stand nearly one week *before* the annual meeting, while the reports for the last three years were from the accounts as they stood at the close of the first day's session, and consequently our monetary affairs show a very decided improvement.

The report of the retiring Treasurer shows that on December 16, 1889, there was in the Central Trust Co., of New York, $2,550.32 to the credit of the Library and Building Fund, and bearing 3 per cent. interest.

I have made a brief analysis of the total receipts and disbursements since the organisation of the Association, which may not be without interest; and though I find a discrepancy of 99 cents in the balance, thus found, as compared with my report as Acting Treasurer, I have not the time at my disposal to hunt up the error, and I the more readily pass it by since it is in favour of the Association.

TOTAL RECEIPTS.

Fees, dues, and assessments,	$13,990.00	
Donations,	1,446.88	
Bequests,	2,000.00	
Sale of Transactions,	107.50	
Miscellaneous,	85.42	
		$17,629.80

DISBURSEMENTS.

For all purposes,	$14,715.62
Total balance in both funds,	$2,914.18

I find another item of interest in the accounts. It will be recalled that only in one instance has our annual collation been made the subject of a charge to those who attended, and in that year tickets were issued at one dollar each. In all other instances a fund has been raised by subscription, and the *balance* remaining has been paid into the Treasury, to be used as the Council saw fit. Some of these balances were so large that they were applied on future collations, though a balance of $630 remaining after the first year was devoted to the Library and Building Funds. Of these balances, there were paid into the Treasury $1,150, from which

$630 were appropriated as aforesaid, leaving $520 to apply on collations; but only $400.50 were so used, leaving a balance of $119.50 in the Treasury from the generosity of those who provided for our annual entertainment. Just what provision may be made in the future for the payment for the annual collation is a question in my judgment not to be considered now. I trust and believe that, for the present, voluntary contributions can be secured which will provide for it.

On motion, the suggestion of the Secretary, relative to the sale of back volumes of the Transactions, was adopted.

The following was unanimously adopted:

Resolved, That the Council, in accepting the resignation of the Treasurership by Dr. J. H. Hinton, wish at the same time to express their high appreciation of the value of his services, and a recognition of the fact that the work he has performed for the Association has been none the less a tax upon his time and strength because it was freely given.

On motion, the Secretary was requested to continue to act as Treasurer until the vacancy was filled.

The Secretary then read the report of the Treasurer as follows:

REPORT OF JOHN H. HINTON TO N. Y. S. M. A. FROM SEPTEMBER 25, 1889, TO AUGUST 30, 1890.

RECEIPTS.

September 25, 1889, balance in treasury,	$277.70	
Dues for one to five years,	1,415.00	
Fifty-five initiations,	275.00	
Donations to collation,	15.00	
Sale of one volume (5),	2.50	
		$1,985.20

DISBURSEMENTS.

Carnegie Laboratory, rent for library,	$108.00	
Dr. E. S. Arnold, Acting Librarian,	9.45	
Insurance and postage,	20.20	
Collation at Hotel Brunswick,	172.00	
Stenographer,	75.00	
Dr. E. D. Ferguson, postage, printing, etc.,	75.78	
Two thousand stamped envelopes,	45.00	
Collecting $17,	1.70	
J. H. Vail & Co., packing and removing Transactions,	12.88	
Crawford, printer,	3.50	
For gratuity to attendants at Hotel Brunswick,	10.00	
Angell's printing-office,	74.97	
August 30, balance in my hands to Dr. Ferguson,	1,376.72	
		$1,985.20
August 30, 1890, leaving no balance in my hands,		$0,000.00

I hold a certificate of deposit of Central Trust Co., of New York, dated December 16, 1889, for $2,550.32 at 3 per cent. interest.

Respectfully submitted:

JOHN H. HINTON.

REPORT OF THE ACTING TREASURER FROM SEPTEMBER 1 TO OCTOBER 16, 1890.

RECEIPTS—GENERAL FUND.

Cash from Dr. J. H. Hinton, balance,	$1,376.72	
Fifteen initiation fees, at $5,	75.00	
Thirty-nine dues, at $5,	195.00	
Four dues, at $3,	12.00	
Two Volumes Transactions, at $2.50,	5.00	
		$1,663.72

DISBURSEMENTS—GENERAL FUND.

For postage stamps,	$38.50	
" freight and expressage,	14.28	
" certificates and cases,	4.00	
" two hektographs,	2.50	
" wrapping-paper,	.60	
" printing and stationery,	12.70	
" printing and publishing Vol. 6, Transactions,	1,226.29	
		$1,298.87
Balance in General Fund, October 16, 1890,		$364.85

Signed:

E. D. FERGUSON,

Secretary and Acting Treasurer.

On motion, the reports were accepted, and referred to the Association.

The Council then listened to the

REPORT OF THE COMMITTEE ON PUBLICATIONS.

It is to be admitted with regret that the appearance of the sixth volume of our Transactions verifies the proverb, "All things come to him who knows how to wait," rather than satisfies the Shakesperian injunction, "'T were well if 't were done quickly." The causes of the delay, however, have been, as in some preceding volumes, beyond the control of the editor, or of the publisher, although in a great degree avoidable by forethought on the part of writers who contribute articles. Procrastination in forwarding papers which have been retained for revision, and, especially, retardation in the preparation of illustrations, interpose obstacles insuperable in the mechanical process of publication. If authors

would bear in mind that the absence of a single sheet of "copy", or of a wood-cut, precludes the type-setting of any of the matter which is to follow it,—since the paging of the forms must be continuous,—and would therefore have their papers and illustrations, if any, in readiness for the printer at the time of the meeting of the Association, the Transactions could be issued after an interval to be counted by weeks instead of months.

The thanks of the committee are due to Dr. Edward K. Dunham for the scholarly zeal with which he has fulfilled his laborious and unrequited task as editor.

Through a binder's error, discovered too late to be rectified, the sixth volume bears on its back the date of its publication, "1890," in lieu of 1889, the year to which its subject-matter relates.

Fellows wishing to complete their sets of the Transactions can obtain copies of the earlier volumes for $1 each. Every Fellow, elected at any time before the adjournment of an annual meeting, is entitled to the volume of Transactions of the previous meeting and to additional copies of the current volume for $2 each.

ALFRED L. CARROLL, *Chairman.*

On motion, the report was accepted and adopted.

Then followed the report of the director of the library.

SIXTH ANNUAL REPORT OF THE LIBRARY COMMITTEE OF THE NEW YORK STATE MEDICAL ASSOCIATION.

October 22, 1890.

In presenting their sixth annual report, the Library Committee have the honour to place before the Association a concise statement of the work performed toward the organisation of the library, together with a summary of its increase since the year of its foundation, and of its present and future needs.

At the first meeting of the Association, November 19, 1884, the following resolutions were offered by J. W. S. Gouley, M. D., of New York county.

1. *Resolved*, That the New York State Medical Association recommends the formation of a library, which shall be called The Library of the New York State Medical Association, and that this library shall be placed in the city of New York.
2. *Resolved*, That the library shall be under the management of the Council, and that the Council be instructed to appoint a committee of three Councillors (one of whom shall act as librarian), to be known as the Library Committee.
3. *Resolved*, That there shall be created a library fund, to be raised by voluntary contributions, and that this fund shall be under the control of the Council and be placed in the hands of the Treasurer of the Association.

These resolutions were seconded by E. M. Moore, M. D., of Monroe county, and unanimously carried.

At a meeting of the Council of the Association held on the 20th of November, 1884, the following named Fellows,—Drs. Gouley, Hinton, and Flint, Jr.,—were appointed to be the Library Committee.

After several conferences, it was agreed that the chairman of the Library Committee issue a circular letter to the Fellows of the Association as soon as a suitable room could be secured for the storage of such books as might be obtained.

The Managing Committee of the Carnegie Laboratory kindly offered for this purpose, at a nominal rent, their Library hall. The generous offer was thankfully accepted by the Library Committee, and possession was obtained on the 1st of June, 1885.

The following letter was then issued to the Fellows of the Association :

NEW YORK STATE MEDICAL ASSOCIATION.

New York, June 1, 1885.

Dear Doctor : The great success of our State Medical Association—the fellowship having reached the number of five hundred and fourteen

within the period of one year—has led me to propose that we organise a Medical Library on a large scale, and that we provide funds for the erection of a fire-proof building, in which to deposit and preserve our books and hold our meetings. These propositions were received with favour at the first regular meeting of the Association, in November, 1884. A committee, of which I have the honour to be chairman, was then appointed to carry out these propositions. As chairman of this committee, I ask leave to submit to you the provisional plans that have been formed, and to solicit your active coöperation in the undertaking.

The Library Committee has the pleasure to inform you that the library of this Association has been opened in the Carnegie Laboratory, 338 and 340 East 26th street, and that a number of books have already been received.

Any medical book or books, or journals, which you may kindly contribute, will be thankfully received.

Each Fellow of the Association is asked to send, as soon as possible, to the above address, one or more books.

Old medical treatises or tracts, which often possess little value when isolated, will be of very great use if put together in a large library, and, when thus collected, cannot fail to be of much service as works of reference to those studying and wishing to elucidate some intricate question in medicine or surgery.

Many practitioners in the various counties have inherited the libraries of several generations, and in these libraries there are many ancient books which should be preserved permanently in such a library as ours. Duplicates of modern books and journals (even odd numbers) may be sent. Due credit will be given to all donors.

Each Fellow of the Association is asked to place in the library all of his own contributions to medical literature, whether in the form of treatises and pamphlets, or of journal articles. These are to be kept separately in the library, and a special index of authors and subjects will be made of the essays and books. If all respond promptly, we shall be able to make an excellent exhibit at our second annual meeting, in November next.

We contemplate placing our library in a fire-proof building, but we must first collect a sufficient number of books; then there will be no great difficulty in raising a large sum of money to erect the permanent home for our library and Association, with reading-rooms, lecture-rooms, a large auditorium for our meetings, and rooms that may be occupied by Fellows visiting the city.

We now have a temporary home and head-quarters in the Library Hall of the Carnegie Laboratory, where all Fellows who come to the city may register their names and addresses, and where their friends may seek them.

In the Carnegie Laboratory our Fellows can, at any time, rent by the week private rooms, in which to make special studies in histology, pathology, and experimental medicine.

The Fellows are particularly requested to send to the chairman of the Library Committee their photographic likenesses, imperial size, to be kept in the library album.

Yours very respectfully,

J. W. S. GOULEY,

Chairman of the Library Committee.

Sundry sums of money, contributed at different times by Fellows residing in New York county, enabled the committee to furnish the library with the necessary book-shelves, chairs, table, etc., and the library was officially opened on the 1st day of June, 1885, a considerable number of books having already been placed upon the shelves.

The first annual report of the Library Committee was made on the 19th of November, 1885, five months and nineteen days after the opening of the library; and the number of books stated was three thousand four hundred and forty-eight (3,448), and the number of pamphlets four thousand (4,000). These books and pamphlets were contributed by ninety-six Fellows, representing thirty-five of the sixty counties of the state, as follows:

Ira H. Abell, Jefferson County.
Amos Allen, Rensselaer County.
C. S. Allen, Rensselaer County.
W. L. Allen, Rensselaer County.
E. S. F. Arnold, New York County.
Glover C. Arnold, New York County.
M. N. Babcock, Saratoga County.
J. E. Beers, Tompkins County.
Hermann M. Biggs, New York County.
Leroy J. Brooks, Chenango County.
Charles W. Brown, Chemung County.
Alexander Buchanan, New York County.
Charles Buckley, Monroe County.
William Chace, Chautauqua County.
James Chapman, Orleans County.
T. M. Ludlow Chrystie, New York County.
Simeon T. Clark, Niagara County.
Darwin Colvin, Wayne County.
William S. Conover, New York County.
Daniel Curtis, Orleans County.
Alphonse Dagenais, Erie County.
Byron DeWitt, Oswego County.
Isaac de Zouche, Fulton County.
Henry D. Didama, Onondaga County.
Abram Du Bois, New York County.
J. Stevens Elder, Madison County.
John M. Farrington, Broome County.
George E. Fell, Erie County.
Everard D. Ferguson, Rensselaer County.
William Fitch, Tompkins County.
Austin Flint, New York County.
Austin Flint, Jr., New York County.

William H. Flint, New York County.
William Fraser, Livingston County.
J. Henry Furman, Westchester County.
William Gillis, Franklin County.
John W. S. Gouley, New York County.
John W. Gray, Livingston County.
Caleb Green, Cortland County.
DeWitt C. Greene, Erie County.
Joseph C. Greene, Erie County.
Frank H. Hamilton, New York County.
George T. Harrison, New York County.
Thomas B. Heimstreet, Rensselaer County.
John H. Hinton, New York County.
Arthur L. Holden, Oneida County.
B. L. Hovey, Monroe County.
Oliver P. Hubbard, New York County.
August Hühne, Ulster County.
Joseph C. Hutchison, Kings County.
Frederick Hyde, Cortland County.
Homer O. Jewett, Cortland County.
George H. Jones, Livingston County.
Thomas J. Kearney, New York County.
John H. Knapp, Cortland County.
Charles A. Leale, New York County.
J. K. Leaning, Otsego County.
N. W. Leighton, Kings County.
William T. Lusk, New York County.
U. C. Lynde, Erie County.
Carlos F. MacDonald, Cayuga County.
G. C. H. Meier, New York County.
Ramon L. Miranda, New York County.
E. M. Moore, Monroe County.
George M. Palmer, Wyoming County.
J. G. Porteous, Dutchess County.
H. N. Porter, Oneida County.
P. Brynberg Porter, New York County.
J. R. Preston, Saratoga County.
W. C. Pryer, Westchester County.
Samuel S. Purple, New York County.
Frederick W. Putnam, Broome County.
James Reagles, Schenectady County.
Tabor B. Reynolds, Saratoga County.
William H. Robb, Montgomery County.
Thomas F. Rochester, Erie County.

H. R. Rogers, Chautauqua County.
Augustus D. Ruggles, New York County.
Robert H. Sabin, Albany County.
Lewis A. Sayre, New York County.
Lewis Hall Sayre, New York County.
O. G. Selden, Greene County.
Robert Selden, Greene County.
John Shrady, New York County.
Samuel W. Smith, New York County.
L. S. Sprague, Wayne County.
E. R. Squibb, Kings County.
G. L. Sutton, St. Lawrence County.
Isaac E. Taylor, New York County.
T. Gaillard Thomas, New York County.
R. C. Van Wyck, Dutchess County.
Theron A. Wales, Chemung County.
John W. Warner, New York County.
Edwin Webb, Queens County.
William T. White, New York County.
Charles S. Wood, New York County.*

*Since the year 1885, the following named twenty-eight (four additional counties) have contributed books to the library:

W. R. Ballou, New York County.
Lyman Barton, Essex County.
Nathan Bozeman, New York County.
Joseph D. Bryant, New York County.
A. H. Buckmaster, New York County.
Alfred L. Carroll, New York County.
C. E. Denison, New York County.
Ellery Denison, New York County.
J. O. Farrington, New York County.
M. S. Fleming, New York County.
John P. Garrish, New York County.
William Govan, Rockland County.
Ernest Ilgen, New York County.
Mrs. Chas. Henschel, New York County.
Nathan S. King, New York County.
Carlos F. MacDonald, Cayuga County.
James R. MacGregor, New York County.
H. W. Mitchell, New York County.
Henry D. Nicoll, New York County.
Ira B. Read, New York County.
R. J. Southworth, Westchester County.
Joshua J. Sweet, Otsego County.
Theodore R. Varick, Jersey City, N. J.
Mrs. Vanderveer, through
Thomas Wilson, Columbia County.
L. C. Vincent, New York County.
George Wieber, Kings County.
Leroy M. Yale, New York County.
William Young, Putnam County.

Books have not yet been contributed to the library by Fellows of the following twenty-one counties:

Alleghany.
Cattaraugus.
Clinton.
Delaware.
Genesee.
Hamilton.
Herkimer.
Lewis.
Ontario.
Orange.
Richmond.
Schoharie.
Schuyler.
Seneca.
Steuben.
Suffolk.
Sullivan.
Tioga.
Warren.
Washington.
Yates.

It is hoped that this library will soon contain gifts of books by Fellows from every county in the state of New York.

Besides the contributions of the Fellows, there were Transactions of various State Societies in exchange for the Transactions of the New York State Medical Association, and also gifts of books by the Surgeon General, U. S. Army, by the Medical Purveyor General, U. S. Army, by the Surgeon General, U. S. Navy, by the Supervising Surgeon General, U. S. Marine Hospital Service, and by Messrs. D. Appleton & Co., of New York city.

The second annual report, November 16, 1886, showed that the number had increased to four thousand and twenty-three (4,023) bound volumes—a gain of five hundred and seventy-five (575) volumes—and five thousand pamphlets.

The resident Fellows of the New York State and New York County Medical Associations contributed, during the year 1886, a binding fund of $174.40, which defrayed the expense of binding one hundred and fifty-six volumes of medical journals.

The office of Director of the Library was created by an amendment to the constitution adopted at the meeting of 1886.

The third annual report, September 27, 1887, showed that the number of volumes had reached four thousand six hundred and nine (4,609)—a gain of five hundred and eighty-six (586).

The fourth annual report, October 9, 1888, showed that the number of volumes had reached seven thousand two hundred and forty (7,240)—a gain of two thousand six hundred and thirty-one (2,631). This great gain is explained by the gift of one thousand six hundred and seventy-six (1,676) volumes, conditionally, by the late Dr. Isaac E. Taylor; otherwise the gain would have been only nine hundred and fifty-five (955).

The fifth annual report, September 24, 1889, showed that the number of volumes had reached seven thousand eight hundred and fifty (7,850)—a gain of six hundred and ten (610).

A special report, presented to the Council at the special session held at the Mott Memorial Hall, December 17, 1889, is as follows:

SPECIAL REPORT ON THE LIBRARY.

December 17, 1889.

The library of the New York State Medical Association now contains about eight thousand (8,000) volumes, and five thousand (5,000) pamphlets; the latter, with very few exceptions, having been contributed by Fellows of the Fifth District.

Of the eight thousand (8,000) volumes, six thousand eight hundred (6,800) are bound, and twelve hundred (1,200) are in sheets or stitched ready for binding.

Of the six thousand eight hundred (6,800) bound volumes, five thousand six hundred and twenty-six (5,626) were contributed by Fellows

of the Fifth District, and one thousand one hundred and seventy-four (1,174) were contributed by Fellows of the other four districts, or less than one fifth.

Of the twelve hundred (1,200) volumes in sheets, not less than seven hundred (700) were contributed by Fellows of the Fifth District; the remaining five hundred (500) consisting of contributions from the Surgeon General of the Army, the Surgeon General of the Navy, and the Supervising Surgeon General of the Marine Hospital Service; also of exchanges of Transactions with many State medical associations; and from other sources—a small proportion only of these twelve hundred (1,200) volumes having been contributed by Fellows of the other four districts.

J. W. S. GOULEY,
Director of the Library.

The over-crowded condition of the library hall at the Carnegie Laboratory rendered it necessary to take steps to secure a more ample lodging for the books; accordingly, at the meeting of the Council held on the 27th of September, 1889, a committee, consisting of "Drs. Glover C. Arnold, Gouley, and Truax, was appointed to confer with a similar committee from the New York County Medical Association in relation to the care of the library and a place for future meetings, to report to the next meeting of the Council, and with power to add to their number."

While the two committees were deliberating upon ways and means of effecting the purposes of the Association, a proposition was made by one of the trustees of the Mott Memorial Library to unite the two libraries. Inasmuch, however, as there were several vacancies in that board of trustees, it was judged best to wait until they should be filled. Pending this action of the trustees of the Mott Library, the county committee retired, and the state committee continued negotiations toward effecting the coalition of the libraries. The trustees of the Mott Memorial Library, in order to carry out their original proposition, elected Fellows of the New York State Medical Association to fill most of these vacancies. The full board then reiterated their proposition to the Council of the New York State Medical Association, as it appears below.

At a special meeting of the Council of the Association, held at 64 Madison avenue on the 17th of December, 1889, the following communication from the trustees of the Mott Memorial Library was received:

"The Mott Memorial Library, having been founded for the promotion of the best interests of the medical profession, it is desirable that a coalition be effected with a representative professional organisation,—wherefore the trustees present to the New York State Medical Association, through its Council, the following propositions:

"1. That the library and museum of the New York State Medical

Association, with all future additions thereto, be placed in the same building with the Mott Memorial Library, the joint collection of books to be used as one library, but to be shelved separately, and properly indicated on the cases.

"2. That the Mott Memorial Library constitute the place of meeting for the New York State Medical Association, its Council, and Committees, and for such other medical and scientific organisations as may be allowed from time to time to meet there by the trustees of the Mott Memorial Library.

"3. That no indebtedness affecting the New York State Medical Association shall be incurred by the trustees of the Mott Memorial Library, nor *vice versa*.

"The foregoing was adopted at a regular meeting of the trustees of the Mott Memorial Library, held on December 6, 1889.

(Signed) ALFRED L. CARROLL, *President.*
GLOVER C. ARNOLD, *Secretary.*"

Upon motion, it was unanimously voted that the Council of the New York State Medical Association accept the foregoing propositions of the trustees of the Mott Memorial Library.

In order to make the acceptance effective, it was resolved,—

"1. That our library and museum be placed in the Mott Memorial Library building.

"2. That our library and building fund, and all future additions thereto, be used for the benefit of the joint library thus formed.

"3. That an annual appropriation of not less than one hundred dollars be made from the general fund of the Association toward the maintenance of the building and joint library under the direction of the trustees of the Mott Memorial Library.

"4. That the net profits of any public lectures, or classes, held under the auspices of the Association, shall be devoted to the maintenance of the collective libraries in the Mott Memorial Library building."

The Committee of Conference, appointed at the last meeting of the Council, was then discharged without a report, and reappointed as the Library Committee, it being constituted of Doctors G. C. Arnold, Ferguson, Gouley, John Shrady, Truax, and the President *ex officio*.

It was then resolved,—"That the library and building fund, with all future additions thereto, be turned over to the treasurer of the Library Committee, to be invested according to the existing by-laws of the Association, and that the said committee be authorised to appoint its treasurer."

It was further voted,—"That the Library Committee be authorised to draw upon the library and building fund for the removal of the library to the Mott Memorial Library building, and for placing the books and

cases in proper position and condition; but that after said removal, the said committee can only use the income from the library and building fund, and that no part of the principal of the same shall be used without the special authority of the Council."

There was unavoidable delay in transferring the library as directed by the Council, but all the books were finally conveyed to their shelves on the first and third stories at 64 Madison avenue, and the library was opened on the 5th day of May, 1890. Since then there has been a considerable accession of books,—six hundred and five (605) volumes having been kindly contributed by the widow of the distinguished Dr. Charles Henschel; and ninety-five (95) volumes by Miss Punnett, daughter of the late Dr. Punnett of New York, through Dr. Abram Du Bois; besides several other gifts, among which is a set of the Transactions of the New Zealand Institute, through the kindness of the Hon. Morgan S. Grace, M. D., of Wellington, New Zealand.

This sixth annual report shows that the library contains eight thousand seven hundred and eighty-eight (8,788) volumes—a gain, from the last annual report, of nine hundred and thirty-eight (938) volumes. Added to this are the four thousand (4,000) volumes of the Mott collection, making a total of twelve thousand seven hundred and eighty-eight (12,788) volumes, and more than five thousand (5,000) pamphlets, accessible at all times to the Fellows of the Association.

Among the largest contributors, those who have each given more than two hundred volumes are,—Drs. E. S. F. Arnold, Alfred L. Carroll, Abram Du Bois, Austin Flint, Austin Flint, Jr., J. W. S. Gouley, Thomas B. Heimstreet, Ernest Ilgen, Nathan S. King, John Shrady, Isaac E. Taylor, and Mrs. Charles Henschel.

Among those who have contributed to the library fund are,—the late Dr. William C. Pryer, who in his lifetime gave $100, and by bequest, $2,000; Dr. J. W. Lockwood, $50; and Dr. William T. Lusk, $250.

Through the liberality of Dr. John Shrady, one hundred and three volumes have lately been bound.

The committee thankfully acknowledge the services rendered by Dr. E. S. F. Arnold in rearranging the books in their new and commodious quarters.

The committee wish to call the Fellows' attention to the fact that odd numbers of journals are no longer needed, but that books, monographs, and contributions to the library and binding funds will always be thankfully received.

The great amount of scientific work performed by the Association, the high character of its published transactions, the good condition of its finances, the very considerable increase of its membership—seven hundred and thirty-two in the first six years of its existence—and the accumula-

tion in its library, together with the Mott collection, of twelve thousand seven hundred and eighty-eight volumes, may fairly be regarded as indices of continued prosperity, which will be ensured by supplying the present needs of the joint libraries. These needs are,—(1) Contributions of the most recent medical, surgical, and obstetrical publications; (2) pecuniary contributions to the library fund; and (3) an increase in the list of exchanges. The future needs are,—(1) a larger building, and (2) a permanent fund, the investment of which will yield a sufficient sum to maintain and increase the libraries.

JOHN W. S. GOULEY, M. D.,
Director of the Library and Chairman of the Library Committee.

All exchanges should be directed to 64 Madison avenue, New York city.

LIBRARY REGULATIONS.

1. The library of the New York State Medical Association and the Mott Memorial Library shall be open from the hours of 9 A. M. to 11 P. M. every day.

2. The hours of admission of the public shall be from 9 to 11 A. M., every day, except Sundays.

3. The hours of admission of medical students shall be from 9 A. M. to 2 P. M., every day, except Sundays.

4. The hours of admission of graduates in medicine shall be from 9 A. M. to 3 P. M., every day, except Sundays.

5. The libraries shall be open at all times to Fellows of the New York State Medical Association and to members of the New York County Medical Association.

6. Visitors and readers are required to write their names and addresses in a book kept in the libraries for this purpose.

7. No book or journal shall be taken out of the libraries by visitors or readers.

. The Librarian shall keep a full catalogue of all the books, journals, transactions of societies, charts, maps, drawings, prints, works of art, and furniture belonging to the libraries, and arrange the whole in proper order. He shall also keep a record of all these objects that may have been presented to the libraries, with the names of the donors, in a book provided for that purpose.

9. The Librarian shall keep in the libraries a list of the names and addresses of the Fellows of the New York State Medical Association and of the members of the New York County Medical Association. He shall keep an accurate account of the number of every volume delivered by him to readers, and shall permit no book to be taken away from the libraries.

10. The Librarian shall deliver books to readers when they shall have filled, signed, and presented slips for that purpose.

11. After using a book the reader shall return the same in good order to the Librarian, who shall properly mark and preserve the slip as a voucher.

12. If any reader deface with marginal notes or by marking, or otherwise injure a book, he shall make the same good to the Librarian; or if the injured book be one of a set, he shall pay the Librarian, for the use of the libraries, the full value of said set, and may thereupon receive the remaining volumes as his property.

13. No conversation shall be allowed in the reading-room otherwise than in a whisper.

In the arrangement of the books, the Library Committee have adopted the Dewey System, with modifications suitable to the joint libraries, and the three grand divisions, Physics, Chemistry, and Biology, as follows:

(530) PHYSICS.

(531) MECHANICS.
.2 Statics.
.3 Dynamics.
.4 Work.
.41 Unit of work.

(532) HYDROSTATICS. HYDRAULICS.

(533) PNEUMATICS.
.1 Properties of gases and vapours.
.3 Atmosphere.
.4 Barometer (v. Hygiene; Meteorology).

(534) ACOUSTICS.

(535) LIGHT. OPTICS.
.3 Reflection—Refraction.
.4 Dispersion—Diffraction.
.5 Polarisation. Polariscope.
.81 Lenses (v. Microscopy; Ophthalmology).

(536) HEAT.

(537) ELECTRICITY.
.2 Statical.
.5 Dynamical.
.86 Galvanometers, batteries, etc. (v. Electro-therapeutics).

(550) GEOLOGY.
(551) Physical and Dynamical Geology.
Including Physical Geography.
.5 Meteorology (v. Hygiene).

(548) CRYSTALLOGRAPHY.

(549) MINERALOGY.

(540) CHEMISTRY.

(543) Analysis.
.1 Food and Drink (v. 613 Hygiene).
.4 Drugs and Medicines (v. Pharmacy; Materia Medica).
.5 Poisons (v. Med. Jurisprudence; Toxicology).

(544) Qualitative.

(545) Quantitative.
.9 Synthesis.

(546) Inorganic.
.1 Non-metallic.
.3 Metals.

(547) Organic (v. Physiology).

(570) BIOLOGY.

(560) Palaeontology.
(561) Plants (v. Phytology).
(562) Animals (v. Zoölogy).

(571) Prehistoric Archaeology.

(572) Ethnology. Anthropology.

Anthropometry.
Macrobiosis (v. Hygiene; 612 Physiology).

(580) Phytology.
(581) Physiological and Structural Botany.
Medicinal Plants (v. 610.1 Materia Medica).
Parasitic Plants (v. Dermatology; Blastomatology).
(589.7) Protophytes (v. Micro-organisms).

(590) Zoölogy.
Protozoa.
(592) Invertebrates (v. Helminthology; Parasites).
(596) Vertebrates (v. Veterinary Medicine).
Domestic animals.
Food animals (v. Hygiene).

(611) Anatomy.
.1 Human.
.11 Transcendental.
.12 Homological.
.13 Descriptive.
.14 Topographical.
.2 Comparative (v. 590 Zoölogy).
.3 Histology.
.31 Normal Histology.
.32 Pathological Histology (v. 591.2 Pathology).

(612) Physiology.
.1 Human.
.2 Comparative.
(591.3).3 Embryology.
.4 Teratology.
.5 Microbiology and Microscopy.

(616) Pathology.
.1 General Pathology.
.2 Patho-anatomy (v. 611.32 Histology).
.3 Comparative Pathology.

(610) Medicine.
Nosonomy and Nosotaxy.
Aetiology, Symptomatology, Semeiology.
Diagnosis and Prognosis.
Therapeutics.
.1 Materia Medica (v. 581 Medicinal Plants).
.11 Pharmacy.

(616.9) General Medicine.
.1 General Diseases.
.2 Fevers, etc.

(616.8) Special Medicine.
.1 Brain and Nervous System.
.11 Psychological Medicine.
(616.2) .2 Respiratory Apparatus.
.21 Pneumatology.
.22 Laryngology.
(616.1) .3 Circulatory Apparatus.
.31 Heart.
.32 Arteries and Veins.
.33 Lymphatics.
(616.8) .4 Digestive Apparatus.
.41 Mouth and Salivary Glands.
.42 Stomach and Intestines.
.43 Liver.
(616.6) .5 Urinary Apparatus.
.51 Kidney.
.52 Bladder.

Paediatrics.

State Medicine.
.1 Medical Jurisprudence.

Medical Legislation.
Medical Education.

(614) .2 Sanitary Science.
.21 Hygiene.
.22 Vital Statistics.
.23 Epidemiology.
.24 Sanitary Engineering.
.25 Prophylaxis.

Veterinary Medicine.

(617) Surgery.
.1 General Surgery.
.11 Surgical Appliances and Instruments.
.2 Military and Naval.
.3 Orthopaedic.
.4 Sensory Apparatus.
.41 Ophthalmology.
.42 Otology.

.43 Rhinology.
.44 Stomatology.
.45 Dermatology.
.5 Blastomatology.
.51 Syphilis.
.52 Syphiloid.
.53 Leprosy.
.54 Tuberculosis.
.55 Lupus.
.56 Glanders.
.57 Actinomycosis.
.58 Rhinoscleroma.
.6 Andrology.
.7 Gynaecology.
.8 Obstetrics.
.9 Dental Surgery.
.10 Veterinary Surgery.
History of Medicine.
Medical Ethics.
Biography and Bibliography.
Dictionaries and Encyclopaedias.
Hospital Reports.
Transactions of Societies.
Journals.

This report was ordered to be printed in pamphlet form for the use of the Library Committee.

Bills to the amount of $26.85 were audited, and ordered paid.

The Secretary was authorised to have pasters prepared and distributed to correct the error of date on the back of Volume VI of the Transactions.

The Secretary read the following communication:

BINGHAMTON, N. Y., October 15, 1890.

To the Council of the N. Y. S. Medical Association:

GENTLEMEN: Recognising the influence and opportunities of the medical profession to aid in the popularisation of sanitary science, it is my desire as President of this Association to enlist its coöperation in this work; and to this end, with your approval, I will offer, as a slight stimulus, a prize of one hundred dollars for the best short, popular essay on some subject connected with practical sanitation.

The conditions involved in this offer are the following:

1. Competition will be open to all.

2. Essays should be forwarded to the Secretary not later than the 1st of August, 1891, accompanied with the name of author under separate seal.

3. That a Committee of Examination and Award be selected by the Council from the Fellowship of the Association.

4. That the successful essay will be read at the next annual meeting of this Association, and, if approved by the Council, offered for publication

in the secular press, and may be issued in tract form, or otherwise, for general circulation.

5. That authors of essays, unsuccessful so far as the prize is concerned, but found worthy of special commendation, will receive intimation as to a proper disposition to be made of them.

6. That the Secretary shall issue, as soon as practicable after the adjournment of this session, a circular letter to the Fellows of the Association, announcing the offer and its conditions, or otherwise giving due notice through the medical press.

Very respectfully,

J. G. ORTON.

On motion, the proposition of the President was unanimously accepted. The Council then adjourned.

E. D. FERGUSON, *Secretary.*

The new Council met in its room at 4 o'clock P. M., October 24, 1890, with the President in the chair.

Present: The chairman, Dr. Stephen Smith, and Drs. Ayres, Carroll, Ferguson, Gouley, Jewett, McLeod, and Van Vranken.

The following were appointed Fellows, viz.: J. C. Mackenzie, Gregorio J. de Quesada, R. A. McDougall.

On motion, the record on page 382, volume 6, of the Transactions was amended, in order that only foreign physicians shall be elected Honorary Fellows, and physicians of other States in the Union, Corresponding Fellows; and thereafter, Sir John Simon, K. C. B., London, England, was elected an Honorary Fellow, and William Goodell, M. D., of Pennsylvania, and Henry O. Marcy, M. D., of Massachusetts, were elected Corresponding Fellows.

The members of the Council residing in the Fifth District were then appointed the Committee of Arrangements for the ensuing meeting, with power to add to their number.

The fourth Wednesday in October, 1891, was designated as the day for opening the seventh annual meeting.

The Committee on Publications was then constituted of the members of the Council for the Fifth District, with the Secretary as chairman and editor.

The bill of Angell's printing-office for $99.68 was then audited and ordered paid, and the sum of $100 was directed to be paid to the trustees of the Mott Memorial Library, in accordance with the agreement.

The President then appointed Drs. Carroll, Gouley, and E. M. Moore as the Committee on Medical Legislation, and, on motion, the President

and Secretary were added to the committee, and power given to add to the number.

The President appointed Drs. Carroll, Cronyn, J. G. Hunt, E. M. Moore, Orton, and Van Zandt as the Committee on Hygiene and Public Health.

The minutes were then approved, and the Council adjourned.

E. D. FERGUSON, *Secretary.*

LIST OF FELLOWS.

BY DISTRICT AND COUNTY.

FIRST OR NORTHERN DISTRICT.

FRANKLIN COUNTY.

Founder.	Gillis, William.	Fort Covington.

1

FULTON COUNTY.

Original.	Blake, Clarence R.	Northville.
Founder.	de Zouche, Isaac.	Gloversville.
	Drake, D. Delos.	Johnstown.
	Edwards, John.	Gloversville.

4

HAMILTON COUNTY.

	McGann, Thomas.	Wells.

1

HERKIMER COUNTY.

	Casey, J. E.	Mohawk.
	Douglass, A. J.	Ilion.
	Ellis, J. B.	Little Falls.
	Fox, Eli.	Mohawk.
	Garlock, William D.	Little Falls.
Original.	Glidden, Charles H.	Little Falls.
	Green, H. H.	Paine's Hollow.
Original.	Potter, Vaughn C.	Starkville.
Original.	Sharer, John P.	Little Falls.
Original.	Southworth, Mark A.	Little Falls.
Original.	Young, John D.	Starkville.

11

JEFFERSON COUNTY.

Founder.	Abell, Ira H.	Antwerp.
Founder.	Crawe, J. Mortimer.	Watertown.
Founder.	Johnson, Charles M.	Watertown.
Original.	Johnson, Parley H.	Adams.
	Miller, J. H.	Carthage.

5

LEWIS COUNTY.

	Crosby, Alexander H.	Lowville.
	Douglass, Charles E.	Constableville.
	Joslin, Albert A.	Martinsburgh.
	Kelly, John D.	Lowville.
	Kilborn, Henry F.	Croghan.

5

MONTGOMERY COUNTY.

Original.	Ayres, Douglas.	Fort Plain.
	Caldwell, Nathan A.	Hageman's Mills.
	French, S. H.	Amsterdam.
Original.	Graves, Ezra.	Amsterdam.
Original.	Johnson, Richard G.	Amsterdam.
	Klock, Charles M.	St. Johnsville.
Original.	Leach, H. M.	Glen.
	Parr, John.	Buel.
	Parsons, W. W. D.	Fultonville.
Founder.	Robb, William H.	Amsterdam.
Original.	Rulison, Elbert T.	Amsterdam.
	Simmons, Frank E.	Canajoharie.
	Smyth, Arthur V. H.	Minaville.

13

ONEIDA COUNTY.

	Armstrong, James A.	Clinton.
	Babcock, H. E.	New London.
Original.	Bagg, Moses M.	Utica.
	Barnum, D. Albert.	Cassville.
Original.	Blumer, G. Alder.	Utica.
	Bond, George F. M.	Utica.
Original.	Booth, Wilbur H.	Utica.
Original.	Brush, Edward N.	Utica.
	Churchill, Alonzo.	Utica.

Clarke, Wallace. Utica.
Dodge, Amos P. Oneida Castle.
Douglass, James W. Booneville.
English, G. P. Booneville.
Flandrau, Thomas M. Rome.
Fraser, Jefferson C. Ava.
Fuller, Earl D. Utica.
Gibson, William M. Utica.
Glass, James H. Utica.
Holden, Arthur L. Utica.
Hughes, Henry R. Clinton.
Original. Hunt, James G. Utica.
Kuhn, William. Rome.
Munger, Charles. Knoxboro.
Nelson, William H. Taberg.
Palmer, Henry C. Utica.
Palmer, Walter B. Utica.
Phelps, George G. Utica.
Original. Pilgrim, Charles W. Utica.
Founder. Porter, Harry N. N. Y. Mills.
Quin, Hamilton S. Utica.
Reid, Christopher C. Rome.
Roberts, John L. D. N. Y. Mills.
Russell, Charles P. Utica.
Spicer, Walter E. Holland Patent.
Sutton, H. C. Rome.
Sutton, Richard E. Rome.
Swartwout, Leander. Prospect.
Tefft, Charles B. Utica.
Wagner, Charles Gray. Utica.
West, Joseph E. Utica.
West, M. Calvin. Rome.

41

OSWEGO COUNTY.

Bacon, Charles G. Fulton.
Bates, Nelson W. Central Square.
Cooley, R. N. Hannibal Centre.
Original. DeWitt, Byron. Oswego.
Original. Hall, William A. Fulton.
Huntington, John W. Mexico.
Johnson, George P. Mexico.
Marsh, E. Frank. Fulton.

Nelson, George W. Orwell.
Todd, John B. Parish.
Original. Tully, A. Melville. Oswego.
11

ST. LAWRENCE COUNTY.

Cook, Guy Reuben. Louisville.
1

SECOND OR EASTERN DISTRICT.

ALBANY COUNTY.

Founder. Bailey, Theodore P. Albany.
Founder. Peters, Samuel. Cohoes.
Founder. Sabin, William B. West Troy.
Original. Van Vranken, Adam T. West Troy.
Witbeck, Charles E. Cohoes.
Zeh, Merlin J. West Troy.
6

CLINTON COUNTY.

Founder. Dodge, Lyndhurst C. Rouse's Point.
Original. Howe, Edwin S. Au Sable Forks.
Founder. Lyon, E. M. Plattsburgh.
3

COLUMBIA COUNTY.

Original. Benham, John C. Hudson.
Fritts, Crawford Ellsworth. Hudson.
Original. Lockwood, J. W. Philmont.
Original. Smith, H. Lyle. Hudson.
Vedder, George W. Philmont.
Wheeler, John T. Chatham.
Founder. Wilson, Thomas. Claverack.
Woodruff, R. Allen. Philmont.
Woodworth, T. Floyd. Kinderhook.
9

ESSEX COUNTY.

Founder. Barton, Lyman. Willsborough.
Church, Charles A. Bloomingdale.
Original. D'Avignon, Francis J. Au Sable Forks.

Original. LaBell, Martin J. Lewis.
Original. Pollard, Abiathar. Westport.
Original. Rand, Hannibal W. Keene.
Original. Rice, Isaac. Bloomingdale.
Original. Riley, Andrew W. Au Sable Forks.
Original. Robinson, Ezra A. Jay.
Original. Turner, Melvin H. Hammondsville.

10

GREENE COUNTY.

Original. Conkling, George. Durham.
Getty, A. H. Athens.
Howland, George T. Athens.
Huestis, W. B. Kiskatom.
Original. Selden, O. G. Catskill.
Original. Selden, Robert. Catskill.

6

RENSSELAER COUNTY.

Original. Allen, Amos. Grafton Centre.
Founder. Allen, Charles S. Greenbush.
Allen, William L. Greenbush.
Original. Baynes, William T. Troy.
Bonesteel, H. F. Troy.
Founder. Bonesteel, William N. Troy.
Original. Bontecou, Reed B. Troy.
Founder. Burbeck, Charles H. Troy.
Founder. Burton, Matthew H. Troy.
Original. Cooper, William C. Troy.
Founder. *Cooper, William S. Troy.
Original. Crombie, Walter C. Schaghticoke.
Crounse, Andrew C. Melrose.
Founder. Ferguson, E. D. Troy.
Founder. Finder, William. Troy.
Greenman, C. E. Troy.
Founder. Hannan, James C. Hoosick Falls.
Founder. Harvie, J. B. Troy.
Original. Heimstreet, Thomas B. Troy.
Original. Houston, David W. Troy.
Hull, William H. Poestenkill.
Keith, Halbert Lyon. West Sand Lake.
Lamb, Milton M. Lansingburgh.
Original. Lyon, George E. Troy.

* Deceased.

	Lyons, Edward L.	Troy.
Original.	Magee, Daniel.	Troy.
	Marsh, James P.	Troy.
	McTammany, George H.	Troy.
Founder.	Mitchell, Howard E.	Troy.
Founder.	Nichols, Calvin E.	Troy.
Founder.	Nichols, William H.	West Sand Lake.
Original.	Rogers, S. Frank.	Troy.
Founder.	Rousseau, Zotique.	Troy.
Founder.	Seymour, W. Wotkyns.	Troy.
Original.	Skinner, Smith A.	Hoosick Falls.
	Sweetman, J. T., Jr.	Troy.
	Tompkins, Fred J.	Lansingburgh.
Original.	Traver, Richard D.	Troy.
	Ward, R. H.	Troy.

39

SARATOGA COUNTY.

Founder.	Babcock, Myron N.	Saratoga Springs.
Founder.	Comstock, George F.	Saratoga Springs.
Founder.	Creal, Charles E.	Saratoga Springs.
	Curtis, P. C.	Round Lake.
Original.	Dunlop, John J.	Waterford.
	Gow, Frank F.	Schuylerville.
Founder.	Grant, Charles S.	Saratoga Springs.
Original.	Hall, William H.	Saratoga Springs.
Founder.	Hodgman, William H.	Saratoga Springs.
	Hudson, George.	Stillwater.
	Inlay, Erwin G.	Conklingville.
Original.	Johnson, Ianthus G.	Greenfield Centre.
	Keefer, Charles W.	Mechanicsville.
	Kniskern, A. C.	Mechanicsville.
Founder.	McEwen, Robert C.	Saratoga Springs.
	Moriarta, D. C.	Saratoga Springs.
Original.	Murray, Byron J.	Saratoga Springs.
	Palmer, F. A.	Mechanicsville.
Original.	Preston, John R.	Schuylerville.
Founder.	Reynolds, Tabor B.	Saratoga Springs.
	Rice, George.	Mechanicsville.
Original.	Sherer, John D.	Waterford.
	Sherman, F. J.	Ballston.
Original.	Stubbs, Roland H.	Waterford.
	Zeh, Edgar.	Waterford.

25

SCHENECTADY COUNTY.

Fuller, Robert. Schenectady.
Hammer, Charles. Schenectady.
Original. McDonald, George E. Schenectady.
McDougall, R. A. Duanesburgh.
Original. Reagles, James R. Schenectady.
Steinführer, Gustavus A. F. Schenectady.
Original. Van Zandt, Henry C. Schenectady.
Willis, A. B. Schenectady.

8

SCHOHARIE COUNTY.

Original. Hagadorn, William. Gilboa.
Original. Kingsley, Henry F. Schoharie.

2

WARREN COUNTY.

Original. Ferguson, James. Glens Falls.
Fitzgerald, David J. Glens Falls.
Original. Martine, Godfrey R. Glens Falls.

3

WASHINGTON COUNTY.

Lambert, John. Salem.
Long, Alfred J. Whitehall.

2

THIRD OR CENTRAL DISTRICT.

BROOME COUNTY.

Allen, S. P. Whitney's Point.
Founder. Chittenden, Joseph H. Binghamton.
Original. Ely, Henry Oliver. Binghamton.
Farnham, LeRoy D. Binghamton.
Farrington, John M. Binghamton.
Greene, Clark W. Chenango Forks.
Original. Hills, Lyman H. Binghamton.
Hough, F. P. Binghamton.
Knapp, W. H. Union Centre.
Meacham, Isaac D. Binghamton.

Moore, William A. Binghamton.
Founder. Orton, John G. Binghamton.
Pierce, Edward A. Binghamton.
Pierson, G. E. Kirkwood.
Founder. Putnam, Frederick W. Binghamton.
Original. Race, W. F. Binghamton.
Founder. Richards, Charles B. Binghamton.
Seymour, Ralph A. Whitney's Point.
Wells, E. H. Binghamton.
19

CAYUGA COUNTY.

Allison, Henry E. Auburn.
Original. Kenyon, M. Moravia.
Original. Laird, William R. Auburn.
Founder. Sawyer, Conant. Auburn.
Original. Tripp, John D. Auburn.
5

CHEMUNG COUNTY.

Original. Brown, Charles W. Elmira.
Original. Ross, Frank W. Elmira.
Squire, Charles L. Elmira.
Original. Wales, Theron A. Elmira.
4

CHENANGO COUNTY.

Original. Blair, Louis P. McDonough.
Original. Brooks, Leroy J. Norwich.
Copley, Herman D. Bainbridge.
Douglas, George. Oxford.
Guy, John D. Coventry.
Hand, S. M. Norwich.
Hayes, Philetus A. Afton.
Original. Johnson, Leonard M. Greene.
Original. Lyman, Elijah S. Sherburne.
Original. Lyman, H. C. Sherburne.
Packer, Thurston G. Smyrna.
Smith, Samuel L. Smithville.
Thompson, R. A. Norwich.
Van Wagner, L. A. Sherburne.
14

CORTLAND COUNTY.

Bradford, George D. Homer.
Original. Clark, DeWitt. Marathon.
Didama, E. A. Cortland.
Founder. Green, Caleb. Homer.
Halbert, M. L. Cincinnatus.
Founder. Hendrick, Henry C. McGrawville.
Higgins, F. W. Cortland.
Founder. Jewett, Homer O. Cortland.
Kenyon, Benjamin. Cincinnatus.
Original. Smith, Marcellus R. Cincinnatus.

10

DELAWARE COUNTY.

Original. Allaben, Orson M. Margaretville.
Morrow, William B. Walton,
Smith, George C. Delhi.
Travis, Edward M. Masonville.

4

MADISON COUNTY.

Original. Birdsall, Gilbert. N. Brookfield.
Burhyte, O. W. Brookfield.
Cavana, Martin. Oneida.
Original. Carpenter, Henry W. Oneida.
Drake, Frank C. Oneida.
Original. Nicholson, A. R. Madison.

6

ONONDAGA COUNTY.

Original. Aberdein, Robert. Syracuse.
Founder. Allen, Henry B. Baldwinsville.
Brown, Ulysses H. Syracuse.
Campbell, A. J. Syracuse.
Original. Cook, George W. Syracuse.
Founder. Dallas, Alexander J. Syracuse.
Founder. Didama, Henry D. Syracuse.
Original. Donohue, Florence O. Syracuse.
Earle, George W. Tully.
Founder. Earll, George W. Skaneateles.
Original. Edwards, Amos S. Syracuse.
Original. Edwards, George A. Syracuse.
Founder. Elsner, Henry L. Syracuse.

39

Flanigan, John R. Syracuse.
Frazee, A. Blair. Elbridge.
Original. Gillette, Charles A. Syracuse.
Original. Hatch, C. A. Syracuse.
Founder. Head, Adelbert D. Syracuse.
Original. *Higgins, Seabury M. Memphis.
Original. Jacobson, Nathan. Syracuse.
Original. Knapp, Edwin A. Jamesville.
Founder. Kneeland, Jonathan. South Onondaga.
Magee, Charles M. Syracuse.
Original. McNamara, Daniel. Syracuse.
Original. Munson, W. W. Otisco.
Founder. Parsons, Israel. Marcellus.
Original. Saxer, Leonard A. Syracuse.
Sears, F. W. Syracuse.
Stephenson, F. Halleck. Syracuse.
Founder. Van de Warker, Ely. Syracuse.
Original. Whitford, James. Onondaga Valley.

31

OTSEGO COUNTY.

Original. Barney, C. S. Milford.
Church, B. A. Oneonta.
Ford, M. L. Oneonta.
Founder. Leaning, John K. Cooperstown.
Original. Martin, John H. Otego.
Original. Merritt, George. Cherry Valley.
Original. Sweet, Joseph J. Unadilla.
Sweet, Joshua J. Unadilla.

8

SCHUYLER COUNTY.

Roper, P. B. Alpine.
Smelzer, Baxter T. Havana.

2

SENECA COUNTY.

Bellows, George A. Waterloo.
Blaine, Myron D. Willard.
Founder. Lester, Elias. Seneca Falls.
Seaman, Frank G. Seneca Falls.
Welles, S. R. Waterloo.

5

* Deceased.

TIOGA COUNTY.

Original.	Ayer, W. L.	Owego.
	Cady, George M.	Nichols.
Original.	Eastman, Robert W.	Owego.

3

TOMPKINS COUNTY.

Founder.	Beers, John E.	Danby.
Founder.	Fitch, William.	Dryden.
	Flickinger, John.	Trumansburg.

3

FOURTH OR WESTERN DISTRICT.

ALLEGHANY COUNTY.

	Cottrell, A. W.	Whitesville.
Original.	Stephenson, James A.	Scio.
Original.	Wakely, Benjamin C.	Angelica.

3

CATTARAUGUS COUNTY.

	Eddy, John L.	Olean.
	Ellsworth, Victor A.	East Otto.
	Lake, Albert D.	Perrysburg.
	Mudge, Selden J.	Olean.
Original.	Tompkins, Orren A.	East Randolph.

5

CHAUTAUQUA COUNTY.

Founder.	Ames, Edward.	Sherman.
	Bemus, William Marvin.	Jamestown.
	*Bemus, William P.	Jamestown.
Founder.	Chace, William.	Mayville.
Founder.	Dean, Harmon J.	Brocton.
	Rolph, R. T.	Dunkirk.
	Richmond, Nelson G.	Fredonia.
Founder.	Strong, Thomas D.	Westfield.

8

*Deceased.

ERIE COUNTY.

Founder. Andrews, Judson B. Buffalo.
Original. Atwood, H. L. Collins Centre.
Original. Banta, Rollin L. Buffalo.
Original. Bartlett, Frederick W. Buffalo.
Original. Barton, Bernard. Buffalo.
Original. Boies, Loren F. East Hamburgh.
Original. Briggs, Albert H. Buffalo.
Brown, George L. Buffalo.
Burghardt, Francis Augustus. Buffalo.
Original. Burwell, George M. Buffalo.
Founder. Cronyn, John. Buffalo.
Original. Dagenais, Alphonse. Buffalo.
Original. Daniels, Clayton M. Buffalo.
Dayton, C. L. Buffalo.
Original. Dorland, Elias T. Buffalo.
Fell, George E. Buffalo.
Fowler, Joseph. Buffalo.
Frederick, Carlton C. Buffalo.
Gould, Cassius W. Buffalo.
Green, Stephen S. Buffalo.
Original. Greene, DeWitt C. Buffalo.
Founder. Greene, Joseph C. Buffalo.
Original. Greene, Walter D. Buffalo.
Original. Harrington, D. W. Buffalo.
Hartwig, Marcell. Buffalo.
Hayd, Herman E. Buffalo.
Heath, William H. Buffalo.
Founder. Hoyer, F. F. Tonawanda.
Hubbell, Alvin A. Buffalo.
Hunt, H. L. Orchard Park.
Ingraham, Henry D. Buffalo.
Jackson, William H. Springville.
Original. Johnson, Thomas M. Buffalo.
Lapp, Henry. Clarence.
Long, Ben. G. Buffalo.
Original. Lynde, Uri C. Buffalo.
McPherson, George W. Lancaster.
Original. Murray, William D. Tonawanda.
Park, Roswell. Buffalo.
Original. Pettit, John A. Buffalo.
Phelps, William C. Buffalo.
Pohlman, Julius. Buffalo.

Original.	Putnam, James W.	Buffalo.
	Stockton, Charles G.	Buffalo.
	Strong, Orville C.	Colden.
	Taber, R. C.	Tonawanda.
	Thornton, William H.	Buffalo.
Founder.	Tremaine, William S.	Buffalo.
	Trull, H. P.	Williamsville.
	Twohey, John J.	Buffalo.
Original.	Vaughn, Frank O.	Buffalo.
	Wheeler, Isaac G.	Marilla.
	Willoughby, M.	Buffalo.
Founder.	Wyckoff, Cornelius C.	Buffalo.

54

GENESEE COUNTY.

Original.	Crane, Frank W.	Corfu.
Founder.	Jackson, Albert P.	Oakfield.
Founder.	Sprague, William B.	Pavilion.
	Stone, Frank L.	LeRoy.
Founder.	Townsend, Morris W.	Bergen.

5

LIVINGSTON COUNTY.

	Brown, J. P.	Tuscarora.
	Dodge, Frank B.	Mount Morris.
	Jones, George H.	Fowlerville.
	Kneeland, B. T.	Dalton.
Original.	Menzie, R. J.	Caledonia.
Original.	Moyer, Frank H.	Moscow.

6

MONROE COUNTY.

Original.	Backus, Ogden.	Rochester.
	Briggs, C. M.	Fairport.
Original.	Briggs, William H.	Rochester.
Original.	Buckley, Charles.	Rochester.
Original.	Buckley, James.	Rochester.
Original.	Burke, John J. A.	Rochester.
Original.	Dunning, J. D.	Webster.
	Fenno, Henry M.	Rochester.
	Goler, George W.	Rochester.
	Gray, John P.	Rochester.

Founder.	Hovey, B. L.	Rochester.
	Jones, S. Case.	Rochester.
	Maine, Alva P.	Webster.
	McDougall, William D.	Spencerport.
Founder.	Moore, Edward M.	Rochester.
Original.	Moore, Edward M., Jr.	Rochester.
Original.	Moore, Richard Mott.	Rochester.
	Nold, John B.	Rochester.
Original.	O'Hare, Thomas A.	Rochester.
Original.	Pease, Joseph.	Hamlin.
	Preston, B. I.	Rochester.
	Snook, George.	Parma.
	Stockschlaeder, P.	Rochester.

23

NIAGARA COUNTY.

Original.	Clark, Simeon T.	Lockport.
	Eddy, George P.	Lewiston.
	Huggins, William Q.	Sanborn.

3

ONTARIO COUNTY.

Original.	Allen, Duncan S.	Seneca.
Original.	Allen, James H.	Gorham.
Founder.	Bentley, Francis R.	Cheshire.
	Cruttenden, Albert G.	Clifton Springs.
	De Laney, John Pope.	Geneva.
Original.	Hicks, W. Scott.	Bristol.
Founder.	Nichols, H. W.	Canandaigua.
Founder.	Simmons, E. W.	Canandaigua.
Founder.	Smith, Joseph T.	Canandaigua.
Original.	Vanderhoof, Frederick D.	Phelps.

10

ORLEANS COUNTY.

Original.	Bailey, William C.	Albion.
Original.	Barnum, Eugene E.	Waterport.
Founder.	Chapman, James.	Medina.
	Curtis, Daniel.	Jeddo.
Original.	Taylor, John H.	Holley.
Founder.	Tompkins, H. C.	Knowlesville.

6

STEUBEN COUNTY.

Chittenden, Daniel J. Addison.
Original. Dunn, Jeremiah. Bath.
Original. Ellison, Metler D. Canisteo.
Fowler, Thomas B. Cohocton.
Gilbert, Horatio. Hornellsville.
Hubbard, Chauncey G. Hornellsville.
Hunter, Nathaniel P. Jasper.
Original. Jamison, John S. Hornellsville.
Original. Perry, Nathaniel M. Troupsburgh.
Van Dusen, Melvin E. Hornellsville.
Wallace, Edwin E. Jasper.

11

WAYNE COUNTY.

Founder. Arnold, J. Newton. Clyde.
Founder. Colvin, Darwin. Clyde.
Horton, David B. Red Creek.
Original. Ingraham, Samuel. Palmyra.
Lamont, John C. Sodus.
Original. Landon, Newell E. Newark.
Nutten, Wilbur F. Newark.
Original. Sayers, Alexander. Marion.
Original. Sprague, John A. Williamson.
Sprague, L. S. Williamson.
Original. Young, Augustus A. Newark.

11

WYOMING COUNTY.

Original. Ellinwood, A. G. Attica.
Lusk, Zera J. Warsaw.
Original. Palmer, George M. Pike.
Original. Rae, Robert. Portageville.
Rudgers, Denton W. Perry.

5

YATES COUNTY.

Oliver, William. Penn Yan.
Smith, David M. Penn Yan.

2

FIFTH OR SOUTHERN DISTRICT.

DUTCHESS COUNTY.

	Baker, Benjamin N.	Rhinebeck.
Original.	Barnes, Edwin.	Pleasant Plains.
	Barton, Thomas J.	Tivoli.
Original.	Bates, Xyris T.	Poughkeepsie.
Original.	Bayley, Guy Carleton.	Poughkeepsie.
	Bird, J. S.	Hyde Park.
Founder.	Codding, George H.	Amenia.
Founder.	Cramer, William.	Poughkeepsie.
Original.	Fletcher, Charles L.	Wing's Station.
	Julian, John M.	Moore's Mill.
Founder.	Kittredge, Charles S.	Fishkill-on-Hudson.
Founder.	Leroy, Irving D.	Pleasant Valley.
Founder.	Porteous, James G.	Poughkeepsie.
Founder.	Pultz, Monroe T.	Stanfordville.
Original.	Van Wyck, Richard C.	Hopewell Junction.
Original.	Young, John.	Fishkill-on-Hudson.

16

KINGS COUNTY.

Founder.	Baker, George W.	Brooklyn, E. D.
	Bell, A. Nelson.	Brooklyn.
	Benton, Stuart H.	Brooklyn.
	Bierwirth, Julius C.	Brooklyn.
Original.	Biggam, William H., Jr.	Brooklyn.
Original.	Brundage, Amos H.	Brooklyn.
Original.	Conway, John Francis.	Brooklyn.
	Creamer, Joseph.	Brooklyn, E. D.
	Creamer, Joseph, Jr.	Brooklyn, E. D.
	Criado, Louis F.	Brooklyn.
	Feeley, James F.	Brooklyn, E. D.
	Gardiner, William F.	Brooklyn.
Original.	Ilgen, Ernest.	Brooklyn.
Original.	Jenkins, John A.	Brooklyn, E. D.
	Jewett, F. A.	Brooklyn.
Original.	Leighton, Nathaniel W.	Brooklyn.
	Little, Frank.	Brooklyn.
Original.	Lloyd, T. Mortimer.	Brooklyn.
Original.	Lung, Jesse B.	Brooklyn.
Original.	McCollom, William.	Brooklyn.

Original. Minard, E. J. Chapin. Brooklyn.
Original. North, Nelson L. Brooklyn.
Ostrander, George A. Brooklyn.
Original. Paine, Arthur R. Brooklyn.
Original. Pray, S. R. Brooklyn.
Price, Henry R. Brooklyn.
Reed, Henry B. Brooklyn.
Risch, Henry F. Brooklyn.
Rochester, Thomas M. Brooklyn.
Founder. Rushmore, John D. Brooklyn.
Original. Russell, William G. Brooklyn.
Founder. Segur, Avery. Brooklyn.
Original. Shepard, A. Warren. Brooklyn.
Original. Sizer, Nelson Buell de S. Brooklyn.
Founder. Squibb, Edward H. Brooklyn.
Founder. Squibb, Edward R. Brooklyn.
Original. Steinke, Carl Otho Hermann. Brooklyn.
Sullivan, John D. Brooklyn.
Original. Thayer, William Henry. Brooklyn.
Thwing, Clarence. Brooklyn.
Vanderveer, J. R. Brooklyn.
Waterworth, William. Brooklyn.
Original. Wieber, George. Brooklyn.
Original. Williams, William H. Brooklyn.
Founder. Wyckoff, Richard M. Brooklyn.

45

NEW YORK COUNTY.

Adams, Calvin Thayer. New York.
Agramonte, E. V. New York.
Original. Allen, S. Busby. New York.
Allen, Thomas H. New York.
Arango, Augustin A. New York.
Original. Arcularius, Lewis. New York.
Armstrong, S. T. New York.
Original. Arnold, Edmund S. F. New York.
Arnold, Glover C. New York.
Baldwin, F. A. New York.
Ballou, William R. New York.
Original. Bathgate, James. Morrisania, New York.
Benedict, Charles S. New York.
Bermingham, Edward J. New York.
Biggs, Chauncey P. New York.
Original. Biggs, Herman M. New York.

Original. *Blakeman, William N. New York.
Founder. Bozeman, Nathan. New York.
Bozeman, Nathan G. New York.
Broderick, William P. New York.
Original. Bryant, Joseph D. New York.
Original. Buchanan, Alexander. New York.
Original. Bull, Charles Stedman. New York.
Bull, William T. New York.
Original. Burchard, Thomas H. New York.
Founder. Cameron, Edward M. New York.
Founder. Carroll, Alfred Ludlow. New York.
Original. Carter, H. Skelton. New York.
Original. Chauveau, Jean F. New York.
Original. Chrystie, T. M. Ludlow. New York.
Collins, Stacy B. New York.
Comfort, John E. New York.
Founder. Conover, William S. New York.
Conway, John R. New York.
Currier, Charles G. New York.
Original. Curry, Walker. New York.
Damainville, Lucien. King's Bridge.
Davis, Robert C. New York.
Original. Denison, C. Ellery. New York.
Original. Denison, Ellery. New York.
Founder. Dennis, Frederic S. New York.
de Quesada, Gregorio J. New York.
Founder. Du Bois, Abram. New York.
Original. Du Bois, Mathew B. New York.
Dudley, A. Palmer. New York.
Dunham, Edward K. New York.
Original. Eliot, Ellsworth. New York.
Erdmann, John F. New York.
Farrington, Joseph O. New York.
Field, Matthew D. New York.
Flinn, Thomas W. P. New York.
Founder. Flint, Austin. New York.
Founder. Flint, William H. New York.
Foster, George V. New York.
Frankenberg, Jacob H. New York.
Original. Furman, Guido. New York.
Original. Garrish, John P. New York.
Gleitsmann, J. W. New York.
Goldthwaite, Henry. New York.

* Deceased.

Founder.	Gouley, John W. S. New York.
	Grauer, Frank. New York.
	Guest, James W. New York.
	Hammond, Frederick Porter. New York.
Original.	Harrison, George Tucker. New York.
Original.	Hills, S. Augden. New York.
Founder.	Hinton, John H. New York.
Founder.	Hodgman, Abbott. New York.
	Holmes, Martha C. New York.
	Hubbard, Dwight L. New York.
	Hubbard, George E. New York.
Founder.	Hubbard, Samuel T. New York.
Founder.	Janeway, Edward G. New York.
	Janvrin, J. E. New York.
	Jenkins, William T. New York.
	Kessler, Adolph. New York.
	King, Ferdinand. New York.
	Kneer, F. G. New York.
	Knipe, George. New York.
Founder.	Leale, Charles A. New York.
	Lewengood, Samuel. New York.
	Lewis, Robert. New York.
	Lockwood, Charles E. New York.
	Ludlow, Ogden C. New York.
	Lukens, Anna. New York.
Founder.	Lusk, William T. New York.
	Lynch, Patrick J. New York.
	MacGregor, James R. New York.
	Mackenzie, J. C. New York.
	McBurney, Charles. New York.
	McGillicuddy, T. J. New York.
	McGowan, John P. New York.
	McIlroy, Samuel H. New York.
Founder.	McLeod, S. B. Wylie. New York.
Original.	McLochlin, James A. New York.
Original.	McNamara, Laurence J. New York.
Founder.	Manley, Thomas H. New York.
	Marshall, Francis F. New York.
	Matthews, David. New York.
	Maury, Rutson. New York.
	Meier, Gottlieb C. H. New York.
Original.	Miller, William T. New York.
	Milliken, S. E. New York.
Original.	Miranda, Ramon L. New York.

Original.	Mitchell, Hubbard W.	New York.
	Mott, Valentine.	New York.
Original.	Murphy, John.	New York.
Original.	Murray, Sandford J.	New York.
	Newberry, John S.	New York.
Original.	Newman, Robert.	New York.
Founder.	Nicoll, Henry D.	New York.
Original.	Oberndorfer, Isidor P.	New York.
	O'Brien, Frederick Wm.	New York.
	Ochs, Benjamin F.	New York.
	Palmer, Edmund J.	New York.
Original.	Parsons, John.	New York.
	Perry, John Gardner.	New York.
	Phelps, Charles.	New York.
Original.	Pooler, Hiram A.	New York.
Original.	Porter, P. Brynberg.	New York.
	Pritchard, R. L.	New York.
Founder.	Purple, Samuel S.	New York.
	Ransom, H. B.	New York.
	Read, Ira B.	New York.
Original.	Ricketts, Benjamin M.	New York.
	Rodgers, Harris C.	New York.
	Roth, Julius A.	New York.
	Ruggles, Augustus D.	New York.
Original.	Sabine, Gustavus A.	New York.
	Sanders, E.	New York.
Founder.	Sayre, Lewis A.	New York.
	Sayre, Reginald H.	New York.
	Shaw, Henry B.	New York.
	Shrady, John.	New York.
	Silver, Henry M.	New York.
	Small, John W.	New York.
	Smeallie, James A.	New York.
Original.	Smith, J. Lewis.	New York.
Original.	Smith, Samuel W.	New York.
Original.	Smith, Stephen.	New York.
Founder.	Thomas, T. Gaillard.	New York.
	Truax, J. G.	New York.
Founder.	Tucker, Carlos P.	New York.
	Van Fleet, Frank.	New York.
	Vincent, Ludger C.	New York.
Original.	Wallach, Joseph G.	New York.
	Walsh, Simon J.	New York.
Founder.	Ward, Charles S.	New York.

Warner, John W. New York.
Weston, Albert T. New York.
Founder. White, Whitman V. New York.
Founder. White, William T. New York.
Founder. Wiener, Joseph. New York.
Williamson, Edward A. New York.
Woodend, William E. New York.
Original. Wyeth, John A. New York.

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ORANGE COUNTY.

Conner, Milton C. Middletown.
Original. Hunt, James H. Port Jervis.
Potts, E. Port Jervis.
Swartwout, H. B. Port Jervis.

4

PUTNAM COUNTY.

Founder. Murdock, George W. Cold Spring.
Founder. Young, William. Cold Spring.

2

QUEENS COUNTY.

Original. Burns, William J. Roslyn.
Original. Rave, Edward G. Oyster Bay.

2

RICHMOND COUNTY.

Founder. Johnston, Francis U. New Brighton.
Kinyoun, Joseph J. Stapleton.
Martindale, F. E. Port Richmond.
Walser, Wm. C. Port Richmond.

4

ROCKLAND COUNTY.

Founder. Govan, William. Stony Point.

1

SUFFOLK COUNTY.

Original. Banks, George B. Huntington.
Original. Chambers, Martin L. Port Jefferson.
Hamill, Edward H. Newark, N. J.

Hulse, William A. Bay Shore.
Original. Lindsay, Wallie. Huntington.
Founder. Woodend, William D. Huntington.
6

SULLIVAN COUNTY.

Original. Bennett, Thomas W. Jeffersonville.
Crocker, Edwin. Narrowsburgh.
De Kay, William H. Parksville.
Johnston, N. B. Barryville.
McWilliams, F. A. Monticello.
Original. Munson, J. A. Grahamsville.
Piper, Charles W. Wurtsborough.
7

ULSTER COUNTY.

Original. Chambers, Jacob. Kingston.
Original. HoornBeek, Philip Du Bois. Wawarsing.
Founder. Hühne, August. Rondout.
Original. Hühne, Frederick. Rondout.
Original. Van Hoevenberg, Henry. Kingston.
Ward, John J. Ellenville.
Original. Ward, Stanley M. Ellenville.
7

WESTCHESTER COUNTY.

Acker, Thomas J. Croton Landing.
Original. Brush, Edward F. Mount Vernon.
Original. Coutant, Richard B. Tarrytown.
Dunham, Theodore. Irvington.
Original. Furman, J. Henry. Tarrytown.
Granger, William D. Mount Vernon.
Original. Huntington, Henry K. New Rochelle.
Founder. Husted, Nathaniel C. Tarrytown.
Original. Lyons, G. A. New Rochelle.
Original. Schmid, H. Ernest. White Plains.
Original. Southworth, Richmond Joseph. Yonkers.
Original. Wells, William L. New Rochelle.
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SUMMARY OF FELLOWSHIP BY DISTRICT.

First District,	93
Second District,	113
Third District,	114
Fourth District,	152
Fifth District,	261
Total Fellowship,	733

ALPHABETICAL LIST OF FELLOWS.

Abell, Ira H., Antwerp, Jefferson Co. Founder.
Aberdein, Robert, 2 Greeley Block, Syracuse, Onondaga Co. Original.
Acker, Thomas J., Croton Landing, Westchester Co.
Adams, Calvin Thayer, 200 W. 55th St., New York, New York Co.
Agramonte, E. V., 435 W. 22d St., New York, New York Co.
Allaben, Orson M., Margaretville, Delaware Co. Original.
Allen, Amos, Grafton, Rensselaer Co. Original.
Allen, Charles S., Greenbush, Rensselaer Co. Founder.
Allen, Duncan S., Seneca, Ontario Co. Original.
Allen, Henry B., Baldwinsville, Onondaga Co. Founder.
Allen, James H., Gorham, Ontario Co. Original.
Allen, S. Busby, 145 E. 83d St., New York, New York Co. Original.
Allen, S. P., Whitney's Point, Broome Co.
Allen, Thomas H., 52 W. 45th St., New York, New York Co.
Allen, William L., Greenbush, Rensselaer Co.
Allison, Henry E., Asylum for Insane Criminals, Auburn, Cayuga Co.
Ames, Edward, Sherman, Chautauqua Co. Founder.
Andrews, Judson B., State Hospital, Buffalo, Erie Co. Founder.
Arango, Augustin A., 125 E. 36th St., New York, New York Co.
Arcularius, Lewis, 121 E. 25th St., New York, New York Co. Original.
Armstrong, James A., Clinton, Oneida Co.
Armstrong, S. T., 166 W. 55th St., New York, New York Co.
Arnold, Edmund S. F., 64 Madison Ave., New York, New York Co. Original.
Arnold, Glover C., 115 E. 30th St., New York, New York Co.
Arnold, J. Newton, Clyde, Wayne Co. Founder.
Atwood, H. L., Collins Centre, Erie Co. Original.
Ayer, W. L., Owego, Tioga Co. Original.
Ayres, Douglas, Fort Plain, Montgomery Co. Original.
Babcock, H. E., New London, Oneida Co. Original.
Babcock, Myron N., Saratoga Springs, Saratoga Co. Founder.
Backus, Ogden, 67 S. Fitzhugh St., Rochester, Monroe Co. Original.
Bacon, Charles G., Fulton, Oswego Co.
Bagg, Moses M., Utica, Oneida Co. Original.
Bailey, Theodore P., 90 Eagle St., Albany, Albany Co. Founder.
Bailey, William C., Albion, Orleans Co. Original.

Baker, Benjamin N., Rhinebeck, Dutchess Co.
Baker, George W., 540 Bedford Ave., Brooklyn, E. D., Kings Co. Founder.
Baldwin, F. A., 329 W. 23d St., New York, New York Co.
Ballou, William R., 102 E. 31st St., New York, New York Co.
Banks, George B., Huntington, Suffolk Co. Original.
Banta, Rollin L., 330 Elk St., Buffalo, Erie Co. Original.
Barnes, Edwin, Pleasant Plains, Dutchess Co. Original.
Barney, Charles S., Milford, Otsego Co. Original.
Barnum, D. Albert, Cassville, Oneida Co.
Barnum, Eugene E., Waterport, Orleans Co. Original.
Bartlett, Frederick W., 112 Ellicott St., Buffalo, Erie Co. Original.
Barton, Lyman, Willsborough, Essex Co. Founder. (Retired list.)
Barton, Thomas J., Tivoli, Dutchess Co.
Bartow, Bernard, 220 Franklin St., Buffalo, Erie Co.
Bates, Nelson W., Central Square, Oswego Co.
Bates, Xyris T., Poughkeepsie, Dutchess Co. Original.
Bathgate, James, Fordham Ave., Morrisania, New York, New York Co. Original.
Bayley, Guy Carleton, Poughkeepsie, Dutchess Co. Original.
Baynes, William T., 2419 5th Ave., Troy, Rensselaer Co. Original.
Beers, John E., Danby, Tompkins Co. Founder.
Bell, A. Nelson, 113A 2d Place, Brooklyn, Kings Co.
Bellows, George A., Waterloo, Seneca Co.
Bemus, Wm. Marvin, Jamestown, Chautauqua Co.
*Bemus, William P., Jamestown, Chautauqua Co.
Benedict, Charles S., 339 W. 19th St., New York, New York Co.
Benham, John C., Hudson, Columbia Co. Original.
Bennett, Thomas W., Jeffersonville, Sullivan Co. Original.
Bentley, Francis R., Cheshire, Ontario Co. Original.
Benton, Stuart H., 1257 Bedford Ave., Brooklyn, Kings Co.
Bermingham, Edward J., 23 E. 46th St., New York, New York Co.
Bierwirth, Julius C., 137 Montague St., Brooklyn, Kings Co.
Biggam, William H., Jr., 636 St. Mark's Ave., Brooklyn, Kings Co. Original.
Biggs, Chauncey P., 58 E. 25th St., New York, New York Co.
Biggs, Hermann M., 58 E. 25th St., New York, New York Co. Original.
Bird, J. S., Hyde Park, Dutchess Co.
Birdsall, Gilbert, North Brookfield, Madison Co. Original.
Blaine, Myron D., Willard, Seneca Co.
Blair, Louis P., McDonough, Chenango Co. Original.
Blake, Clarence R., Northville, Fulton Co. Original.
*Blakeman, William N., 28 W. 37th St., New York, New York Co. Original.

* Deceased.

Blumer, G. Alder, State Hospital, Utica, Oneida Co. Original.
Boies, Loren F., East Hamburgh, Erie Co. Original.
Bond, G. F. M., State Hospital, Utica, Oneida Co.
Bonesteel, H. F., Mill St., Troy, Rensselaer Co.
Bonesteel, William N., Mill St., Troy, Rensselaer Co. Founder. (Retired list.)
Bontecou, Reed B., 82 4th St., Troy, Rensselaer Co. Original.
Booth, Wilbur H., 172 Genesee St., Utica, Oneida Co. Original.
Bozeman, Nathan, 9 W. 31st St., New York, New York Co. Founder.
Bozeman, Nathan G., 9 W. 31st St., New York, New York Co.
Bradford, George D., Homer, Cortland Co.
Briggs, Albert H., 267 Hudson St., Buffalo, Erie Co. Original.
Briggs, C. M., Fairport, Monroe Co.
Briggs, William H., 138 E. Main St., Rochester, Monroe Co. Original.
Brodrick, William P., 166 W. 121st St., New York, New York Co.
Brooks, Leroy J., Norwich, Chenango Co. Original.
Brown, Charles W., 902 14th St., N. W., Washington, D. C. Original.
Brown, George L., 173 Niagara St., Buffalo, Erie Co.
Brown, J. P., Tuscarora, Livingston Co.
Brown, Ulysses H., 312 Warren St., Syracuse, Onondaga Co.
Brundage, Amos H., 609 Madison St., Brooklyn, Kings Co. Original.
Brush, Edward F., Mount Vernon, Westchester Co. Original.
Brush, Edward N., Penn. Hospital for the Insane, Philadelphia, Penn. Original.
Bryant, Joseph D., 54 W. 36th St., New York, New York Co. Original.
Buchanan, Alexander, 358 W. 30th St., New York, New York Co. Original.
Buckley, Charles, 127 E. Main St., Rochester, Monroe Co. Original.
Buckley, James, 127 E. Main St., Rochester, Monroe Co. Original.
Bull, Charles Stedman, 47 W. 36th St., New York, New York Co. Original.
Bull, William T., 35 W. 35th St., New York, New York Co.
Burbeck, Charles H., 91 1st St., Troy, Rensselaer Co. Founder.
Burchard, Thomas H., 7 E. 48th St., New York, New York Co. Original.
Burghardt, Francis Augustus, 632 Elm St., Buffalo, Erie Co.
Burhyte, O. W., Brookfield, Madison Co.
Burke, John J. A., 65 East Ave., Rochester, Monroe Co. Original.
Burns, William J., Roslyn, Queens Co. Original.
Burton, Matthew H., 75 4th St., Troy, Rensselaer Co. Founder.
Burwell, George N., 130 Pearl St., Buffalo, Erie Co. Original.
Cady, George M., Nichols, Tioga Co.
Caldwell, Nathan A., Hageman's Mills, Montgomery Co.
Cameron, Edward M., 22 W. 47th St., New York, New York Co. Founder

Campbell, A. J., 332 Warren St., Syracuse, Onondaga Co.
Carpenter, Henry W., Oneida, Madison Co. Original.
Carroll, Alfred Ludlow, 30 W. 59th St., New York, New York Co. Founder.
Carter, H. Skelton, 130 E. 24th St., New York, New York Co. Original.
Casey, J. E., Mohawk, Herkimer Co.
Cavana, Martin, Oneida, Madison Co.
Chace, William, Mayville, Chautauqua Co. Founder.
Chambers, Jacob, Kingston, Ulster Co. Original.
Chambers, Martin L., Port Jefferson, Suffolk Co. Original.
Chapman, James, Medina, Orleans Co. Founder.
Chauveau, Jean F., 31 W. 60th St., New York, New York Co. Original.
Chittenden, Daniel J., Addison, Steuben Co.
Chittenden, Joseph H., Binghamton, Broome Co. Founder.
Chrystie, T. M. Ludlow, 216 W. 46th St., New York, New York Co. Original.
Church, B. A., Oneonta, Otsego Co.
Church, Charles A., Bloomingdale, Essex Co.
Churchill, Alonzo, 189 Genesee St., Utica, Oneida Co. (Retired list.)
Clark, Dewitt C., Marathon, Cortland Co. Original.
Clark, Simeon Tucker, Lockport, Niagara Co. Original.
Clarke, Wallace, 136 Park Ave., Utica, Oneida Co.
Codding, George H., Amenia, Dutchess Co. Founder.
Collins, Stacy B., 106 E. 35th St., New York, New York Co.
Colvin, Darwin, Clyde, Wayne Co. Founder.
Comfort, John E., 1315 Franklin Ave., New York, New York Co.
Comstock, George F., Saratoga Springs, Saratoga Co. Founder.
Conkling, George, Durham, Greene Co. Original.
Conner, Milton C., Middletown, Orange Co.
Conover, William S., 205 W. 133d St., New York, New York Co. Founder.
Conway, John Francis, 572 Willoughby Ave., Brooklyn, Kings Co. Original.
Conway, John R., 14 Lexington Ave., New York, New York Co.
Cook, George W., Syracuse, Onondaga Co. Original.
Cook, Guy Reuben, Louisville, St. Lawrence Co.
Cooley, R. N., Hannibal Centre, Oswego Co.
Cooper, William C., 81 3d St., Troy, Rensselaer Co. Original.
*Cooper, William S., 81 3d St., Troy, Rensselaer Co. Founder.
Copley, Herman D., Bainbridge, Chenango Co.
Cottrell, A. W., Myerstown, Lebanon Co., Pa.
Coutant, Richard B., Tarrytown, Westchester Co. Original.
Cramer, William, 136 Mansion St., Poughkeepsie, Dutchess Co. Founder.
Crane, Frank W., Corfu, Genesee Co. Original.
Crawe, J. Mortimer, Watertown, Jefferson Co. Founder.

* Deceased.

Creal, Charles E., 2443 McCoy Ave., Kansas City, Mo. Founder.
Creamer, Joseph, 154 Hewes St., Brooklyn, E. D., Kings Co.
Creamer, Joseph, Jr., 168 N. 6th St., Brooklyn, E. D., Kings Co.
Criado, Louis F., 147 Fort Green Place, Brooklyn, Kings Co.
Crocker, Edwin, Narrowsburgh, Sullivan Co.
Crombie, Walter C., Schaghticoke, Rensselaer Co. Original.
Cronyn, John, 55 W. Swan St., Buffalo, Erie Co. Founder.
Crosby, Alexander H., Lowville, Lewis Co.
Crounse, Andrew C., Melrose, Rensselaer Co.
Cruttenden, Albert G., Clifton Springs, Ontario Co.
Currier, Charles G., 75 W. 55th St., New York, New York Co.
Curry, Walker, 21 E. 61st St., New York, New York Co. Original.
Curtis, Daniel, Jeddo, Orleans Co.
Curtis, P. C., Round Lake, Saratoga Co.
Dagenais, Alphonse, 473 W. Virginia St., Buffalo, Erie Co. Original.
Dallas, Alexander J., 48 Warren St., Syracuse, Onondaga Co. Founder.
Damainville, Lucien, King's Bridge, New York, New York Co
Daniels, Clayton M., 82 N. Pearl St., Buffalo, Erie Co. Original.
D'Avignon, Francis J., Au Sable Forks, Essex Co. Original.
Davis, Robert C., 150 E. 128th St., New York, New York Co.
Dayton, C. L., 246 Dearborn St., Buffalo, Erie Co.
Dean, Harmon J., Brocton, Chautauqua Co. Founder.
DeKay, William H., Parksville, Sullivan Co.
De Laney, John Pope, Geneva, Ontario Co.
Denison, Charles Ellery, 124 W. 13th St., New York, New York Co. Original.
Denison, Ellery, 124 W. 13th St., New York, New York Co. Original.
Dennis, Frederic S., 542 Madison Ave., New York, New York Co. Founder.
de Quesada, Gregorio J., 307 W. 28th St., New York, New York Co.
De Witt, Byron, Oswego, Oswego Co. Original.
de Zouche, Isaac, Gloversville, Fulton Co. Founder.
Didama, Emory A., Cortland, Cortland Co.
Didama, Henry D., 112 S. Salina St., Syracuse, Onondaga. Founder.
Dodge, Amos P., Oneida Castle, Oneida Co.
Dodge, Frank B., Mount Morris, Livingston Co.
Dodge, Lyndhurst C., Rouse's Point, Clinton Co. Founder.
Donohue, Florence O., 54 S. Clinton St., Syracuse, Onondaga Co. Original.
Dorland, Elias T., 86 N. Division St., Buffalo, Erie Co. Original.
Douglas, George, Oxford, Chenango Co.
Douglass, A. J., Ilion, Herkimer Co.
Douglass, Charles E., Constableville, Lewis Co.
Douglass, James W., Booneville, Oneida Co.

Drake, D. Delos, Johnstown, Fulton Co.
Drake, Frank C., Oneida, Madison Co.
Du Bois, Abram, 16 W. 30th St., New York, New York Co. Founder.
Du Bois, Matthew B., 41 W. 33d St., New York, New York Co. Original.
Dudley, A. Palmer, 640 Madison Ave., New York, New York Co.
Dunham, Edward K., 53 E. 30th St., New York, New York Co.
Dunham, Theodore, Irvington, Westchester Co.
Dunlop, John J., Waterford, Saratoga Co. Original.
Dunn, Jeremiah, Bath, Steuben Co. Original.
Dunning, J. D., Webster, Monroe Co. Original.
Earle, George W., Tully, Onondaga Co.
Earll, George W., Skaneateles, Onondaga Co. Founder.
Eastman, Robert W., Owego, Tioga Co. Original.
Eddy, George P., Lewiston, Niagara Co.
Eddy, John L., Olean, Cattaraugus Co.
Edwards, Amos S., 367 N. Salina St., Syracuse, Onondaga Co. Original.
Edwards, George A., Catherine and Lodi Sts., Syracuse, Onondaga Co. Original.
Edwards, John, Gloversville, Fulton Co.
Eliot, Ellsworth, 48 W. 36th St., New York, New York Co. Original.
Ellingwood, A. G., Attica, Wyoming Co. Original.
Ellis, J. B., Little Falls, Herkimer Co.
Ellison, Metler D., Canisteo, Steuben Co. Original.
Ellsworth, Victor A., East Otto, Cattaraugus Co.
Elsner, Henry L., 308 N. Salina St., Syracuse, Onondaga Co. Founder.
Ely, Henry Oliver, Binghamton, Broome Co. Original.
English, G. P., Booneville, Oneida Co.
Erdmann, John F., 130 E. 27th St., New York, New York Co.
Farnham, LeRoy D., Binghamton, Broome Co.
Farrington, John M., Binghamton, Broome Co.
Farrington, Joseph O., 1991 Madison Ave., New York, New York Co.
Feely, James F., 296 Lorimer St., Brooklyn, E. D., Kings Co.
Fell, George E., 72 Niagara St., Buffalo, Erie Co.
Fenno, Henry Marshall, 77 W. Main St., Rochester, Monroe Co.
Ferguson, E. D., 1 Union Place, Troy, Rensselaer Co. Founder.
Ferguson, James, Glens Falls, Warren Co. Original.
Field, Mathew D., 115 E. 40th St., New York, New York Co.
Finder, William, Jr., 2 Union Place, Troy, Rensselaer Co. Founder.
Fitch, William, Dryden Tompkins Co. Founder.
Fitzgerald, David J., Glens Falls, Warren Co.
Flandrau, Thomas M., Rome, Oneida Co.
Flanigan, John R., Syracuse, Onondaga Co.
Fletcher, Charles L., Wing's Station, Dutchess Co. Original.

Flickinger, John, Trumansburg, Tompkins Co.
Flinn, Thomas W. P., 137 E. 28th St., New York, New York Co.
Flint, Austin, 14 W. 33d St., New York, New York Co. Founder.
Flint, William H., 37 E. 33d St., New York, New York Co. Founder.
Ford, M. L., Oneonta, Otsego Co.
Foster, George V., 109 E. 18th St., New York, New York Co.
Fowler, Joseph, 31 Church St., Buffalo, Erie Co.
Fowler, Thomas B., Cohocton, Steuben Co.
Fox, Eli, Mohawk, Herkimer Co.
Frankenberg, Jacob H., 142 E. 74th St., New York, New York Co.
Fraser, Jefferson C., Ava, Oneida Co.
Frazee, A. Blair, Elbridge, Onondaga Co.
Frederick, Carlton C., 64 Richmond Ave., Buffalo, Erie Co.
French, S. H., Amsterdam, Montgomery Co.
Fritts, Crawford Ellsworth, Hudson, Columbia Co.
Fuller, Earl D., 66 Varick St., Utica, Oneida Co.
Fuller, Robert, Schenectady, Schenectady Co.
Furman, Guido, 125 W. 73d St., New York, New York Co. Original.
Furman, J. Henry, Tarrytown, Westchester Co. Original.
Gardiner, W. F., 175 6th Ave., Brooklyn, Kings Co.
Garlock, William D., Little Falls, Herkimer Co.
Garrish, John P., 2147 7th Ave., New York, New York Co. Original.
Getty, A. H., Athens, Greene Co.
Gibson, William M., 187 Genesee St., Utica, Oneida Co.
Gilbert, Horatio, Hornellsville, Steuben Co.
Gillette, Charles A., S. Salina and Castle Sts., Syracuse, Onondaga Co. Original.
Gillis, William, Fort Covington, Franklin Co. Founder.
Glass, James H., 170 Genesee St., Utica, Oneida Co.
Gleitsmann, J. W., 117 2d Ave., New York, New York Co.
Glidden, Charles H., Little Falls, Herkimer Co. Original.
Goldthwaite, Henry, Fifth Avenue Hotel, New York, New York Co.
Goler, George W., 54 S. Fitzhugh St., Rochester, Monroe Co.
Gould, Cassius W., 1428 Main St., Buffalo, Erie Co.
Gouley, John W. S., 324 Madison Ave., New York, New York Co. Founder.
Govan, William, Stony Point, Rockland Co. Founder.
Gow, Frank F., Schuylerville, Saratoga Co.
Granger, William D., Mount Vernon, Westchester Co.
Grant, Charles S., Saratoga Springs, Saratoga Co. Founder.
Grauer, Frank, 326 W. 46th St., New York, New York Co.
Graves, Ezra, Amsterdam, Montgomery Co. Original.
Gray, John P., 270 Alexander Ave., Rochester, Monroe Co.
Green, Caleb, Homer, Cortland Co. Founder.

Green, H. H., Paine's Hollow, Herkimer Co.
Green, Stephen S., 384 Swan St., Buffalo, Erie Co.
Greene, Clark W., Chenango Forks, Broome Co.
Greene, De Witt C., 124 E. Swan St., Buffalo, Erie Co. Original.
Greene, Joseph C., 124 E. Swan St., Buffalo, Erie Co. Founder.
Greene, Walter D., 444 Elk St., Buffalo, Erie Co. Original.
Greenman, C. E., 575 1st St., Troy, Rensselaer Co.
Guest, James W., 231 W. Chestnut St., Louisville, Ky.
Guy, J. D., Coventry, Chenango Co.
Hagadorn, William, Gilboa, Schoharie Co. Original.
Halbert, M. L., Cincinnatus, Cortland Co.
Hall, William A., Minneapolis, Minn. Original.
Hall, William H., Saratoga Springs, Saratoga Co. Original.
Hamill, Edward H., 878 Broad St., Newark, New Jersey.
Hammer, Charles, Schenectady, Schenectady Co.
Hammond, Frederick Porter, 533 E. 120th St., New York, New York Co.
Hand, S. M., Norwich, Chenango Co.
Hannan, James C., Hoosick Falls, Rensselaer Co. Founder.
Harrington, D. W., 1430 Main St., Buffalo, Erie Co. Original.
Harrison, George Tucker, 221 W. 23d St.. New York, New York Co. Original.
Hartwig, Marcell, 38 E. Huron St., Buffalo, Erie Co.
Harvie, J. B., 6 Clinton Place, Troy, Rensselaer Co. Founder.
Hatch, C. A., 110 E. Onondaga St., Syracuse, Onondaga Co. Original.
Hayd, Herman E., 78 Niagara St., Buffalo, Erie Co.
Hayes, Philetus A., Afton, Chenango Co.
Head, Adelbert D., 322 S. Salina St., Syracuse, Onondaga Co. Founder.
Heath, William H., 415 Pearl St., Buffalo, Erie Co.
Heimstreet, Thomas B., 14 Division St., Troy, Rensselaer Co. Original.
Hendrick, Henry C., McGrawville, Cortland Co. Founder.
Hicks, W. Scott, Bristol, Ontario Co. Original.
Higgins, F. W., Cortland, Cortland Co.
*Higgins, Seabury M., Memphis, Onondaga Co. Original.
Hills, Lyman H., Binghamton, Broome Co. Original.
Hills, Samuel Augden, 53 E. 123d St., New York, New York Co. Original.
Hinton, John H., 41 W. 32d St., New York, New York Co. Founder.
Hodgman, Abbott, 141 E. 38th St., New York, New York Co. Founder.
Hodgman, William H., 109 Caroline St., Saratoga Springs, Saratoga Co. Founder.
Holden, Arthur L., 116 South St., Utica, Oneida Co.
Holmes, Martha C., 19 E. 127th St., New York, New York Co.
HoornBeek, Philip Du Bois, Wawarsing, Ulster Co. Original.
Horton, David B., Red Creek, Wayne Co.

* Deceased.

Hough, F. P., Binghamton, Broome Co.
Houston, David W., 44 2d Street., Troy, Rensselaer Co. Original.
Hovey, B. L., 34 N. Fitzhugh St., Rochester, Monroe Co. Founder.
Howe, Edwin S., Au Sable Forks, Essex Co. Original.
Howland, George T., Athens, Greene Co.
Hoyer, F. F., Tonawanda, Erie Co. Founder.
Hubbard, Chauncey G., Hornellsville, Steuben Co.
Hubbard, Dwight L., 344 W. 33d St., New York, New York Co.
Hubbard, George E., 257 W. 52d St., New York, New York Co.
Hubbard, Samuel T., 27 W. 9th St., New York, New York Co. Founder.
Hubbell, Alvin A., 212 Franklin St., Buffalo, Erie Co.
Hudson, George, Stillwater, Saratoga Co.
Huestis, W. B., Kiskatom, Greene Co.
Huggins, William Q., Sanborn, Niagara Co.
Hughes, Henry R., Clinton, Oneida Co.
Hühne, August, Rondout, Ulster Co. Founder.
Hühne, Frederick, Rondout, Ulster Co. Original.
Hull, William H., Poestenkill, Rensselaer Co.
Hulse, William A., Bay Shore, Suffolk Co.
Hunt, H. L., Orchard Park, Erie Co.
Hunt, James G., 5 Gardner Block, Utica, Oneida Co. Original.
Hunt, James H., Port Jervis, Orange Co. Original.
Hunter, Nathaniel P., Jasper, Steuben Co.
Huntington, Henry K., New Rochelle, Westchester Co. Original.
Huntington, John W., Mexico, Oswego Co.
Husted, Nathaniel C., Tarrytown, Westchester Co. Founder.
Ilgen, Ernest, 369 Herkimer St., Brooklyn, Kings Co. Original.
Ingraham, Henry D., 405 Franklin St., Buffalo, Erie Co.
Ingraham, Samuel, Palmyra, Wayne Co. Original. (Retired list.)
Inlay, Irwin G., Conklingville, Saratoga Co.
Jackson, Albert P., Oakfield, Genesee Co. Founder.
Jackson, William H., Springville, Erie Co.
Jacobson, Nathan, 114 S. Salina St., Syracuse, Onondaga Co. Original.
Jamison, John S., Hornellsville, Steuben Co. Original.
Janeway, Edward G., 36 W. 40th St., New York, New York Co. Founder.
Janvrin, J. E., 191 Madison Ave., New York, New York Co.
Jenkins, John A., 150 Milton St., Brooklyn, E. D., Kings Co. Original.
Jenkins, William T., 109 E. 26th St., New York, New York Co.
Jewett, F. A., 370 Tompkins Ave., Brooklyn, E. D., Kings Co.
Jewett, Homer O., Cortland, Cortland Co. Founder.
Johnson, Charles M., San Diego, Cal. Founder.
Johnson, George P., Mexico, Oswego Co.
Johnson, Ianthus G., Greenfield Centre, Saratoga Co. Original.

Johnson, Leonard M., Greene, Chenango Co. Original.
Johnson, Parley H., Adams, Jefferson Co. Original.
Johnson, Richard G., Amsterdam, Montgomery Co. Original.
Johnson, Thomas M., 309 Main St., Buffalo, Erie Co. Original.
Johnston, Francis U., New Brighton, Richmond Co. Founder.
Johnston, N. B., Barryville, Sullivan Co.
Jones, George H., Fowlerville, Livingston Co.
Jones, S. Case, 39 N. Fitzhugh St., Rochester, Monroe Co.
Joslin, Albert A., Martinsburgh, Lewis Co.
Julian, John M., Moore's Mill, Dutchess Co.
Keefer, Charles W., Mechanicsville, Saratoga Co.
Keith, Halbert Lyon, Upton, Mass.
Kelly, John Devin, Lowville, Lewis Co.
Kenyon, Benjamin, Cincinnatus, Cortland Co.
Kenyon, M., Moravia, Cayuga Co. Original.
Kessler, Adolph, 644 Lexington Ave., New York, New York Co.
Kilborn, Henry F., Croghan, Lewis Co.
King, Ferdinand, 21 Platt St., New York, New York Co.
Kingsley, Henry F., Schoharie, Schoharie Co. Original.
Kinyoun, Joseph J., Stapleton, Richmond Co.
Kittredge, Charles S., Fishkill-on-Hudson, Dutchess Co. Founder.
Klock, Charles M., St. Johnsville, Montgomery Co.
Knapp, Edwin A., 629 Montgomery St., Syracuse, Onondaga Co. Original.
Knapp, W. H., Union Centre, Broome Co.
Kneeland, B. T., Dalton, Livingston Co.
Kneeland, Jonathan S., Onondaga, Onondaga Co. Founder. (Retired List.)
Kneer, F. G., 236 W. 51st St., New York, New York Co.
Knipe, George, 354 W. 24th St., New York, New York Co.
Kniskern, A. C., Mechanicsville, Saratoga Co.
Kuhn, William, Rome, Oneida Co.
La Bell, Martin J., Lewis, Essex Co. Original.
Laird, William R., 98 Wall St., Auburn, Cayuga Co. Original.
Lake, Albert D., Perrysburg, Cattaraugus Co.
Lamb, Milton M., Lansingburgh, Rensselaer Co.
Lambert, John, Salem, Washington Co.
Lamont, John C., Sodus, Wayne Co.
Landon, Newell E., Newark, Wayne Co. Original.
Lapp, Henry, Clarence, Erie Co.
Leach, H. M., Glen, Montgomery Co. Original.
Leale, Charles A., 604 Madison Ave., New York, New York Co. Founder.
Leaning, John K., Cooperstown, Otsego Co. Founder.
Leighton, N. W., 143 Taylor St., Brooklyn, E. D., Kings Co. Original.
Le Roy, Irving D., Pleasant Valley, Dutchess Co. Founder.

Lester, Elias, Seneca Falls, Seneca Co. Founder.
Lewengood, Samuel, 129 E. 84th St., New York, New York Co.
Lewis, Robert, 449 E. 118th St., New York, New York Co.
Lindsay, Wallie, Huntington, Suffolk Co. Original.
Little, Frank, 135 Remsen St., Brooklyn, Kings Co.
Lloyd, T. Mortimer, 125 Pierrepont St., Brooklyn, Kings Co. Original.
Lockwood, Charles E., 63 W. 36th St., New York, New York Co.
Lockwood, J. W., Philmont, Columbia Co. Original.
Long, Alfred J., Whitehall, Washington Co.
Long, Ben G., 1430 Main St., Buffalo, Erie Co.
Ludlow, Ogden C., 210 W. 135th St., New York, New York Co.
Lukens, Anna, 1068 Lexington Ave., New York, New York Co.
Lung, Jesse B., 382 Marion St., Brooklyn, Kings Co. Original.
Lusk, William T., 47 E. 34th St., New York, New York Co. Founder.
Lusk, Zera J., Warsaw, Wyoming Co.
Lyman, Elijah S., Sherburne, Chenango Co. Original.
Lyman, H. C., Sherburne. Chenango Co. Original.
Lynch, Patrick J., 216 E. 13th St., New York, New York Co.
Lynde, Uri C., 13 Niagara St., Buffalo, Erie Co. Original.
Lyon, E. M., Plattsburgh, Clinton Co. Founder.
Lyon, George E., 1915 5th Ave., Troy, Rensselaer Co. Original.
Lyons, Edward L., 298 4th St., Troy, Rensselaer Co.
Lyons, G. A., New Rochelle, Westchester Co. Original.
MacGregor, James R., 1037 Madison Ave., New York, New York Co.
Mackenzie, J. C., 432 W. 22d St., New York, New York Co.
Magee, Charles M., 201 Seymour St., Syracuse, Onondaga Co.
Magee, Daniel, 116 3d St., Troy, Rensselaer Co. Original.
Maine, Alvah P., Webster, Monroe Co.
Manley, Thomas H., 302 W. 53d St., New York, New York Co. Founder.
Marsh, E. Frank, Fulton, Oswego Co.
Marsh, James P., 57 4th St., Troy, Rensselaer Co.
Marshall, Francis F., 56 W. 56th St., New York, New York Co.
Martin, John H., Otego, Otsego Co. Original.
Martindale, F. E., Port Richmond, Richmond Co.
Martine, Godfrey R., Glens Falls, Warren Co. Original.
Matthews, David, 73 E. 54th St., New York, New York Co.
Maury, Rutson, 252 Madison Ave., New York, New York Co.
McBurney, Charles, 40 W., 36th St., New York, New York Co.
McCollom, William, 195 Lefferts Place, Brooklyn, Kings Co. Original.
McDonald, George E., Schenectady, Schenectady Co. Original.
McDougall, R. A., Duanesburgh, Schenectady Co.
McDougall, William D., Spencerport, Monroe Co. (San José, Cal.)
McEwen, Robert C., Saratoga Springs, Saratoga Co. Founder.
McGann, Thomas, Wells, Hamilton Co.

McGillicuddy, T. J., 125 E. 83d St., New York, New York Co.
McGowen, John P., 137 E. 28th St., New York, New York Co.
McIlroy, Samuel H., 330 Alexander Ave., New York, New York Co.
McLeod, S. B. Wylie, 247 W. 23d St., New York, New York Co. Founder.
McLochlin, James A., 203 7th Ave., New York, New York Co. Original.
McNamara, Daniel, 58 W. Genesee St., Syracuse, Onondaga Co. Original.
McNamara, Laurence J., 126 Washington Place (West), New York, New York Co. Original.
McPherson, George W., Lancaster, Erie Co.
McTammany, George H., Washington Park, Troy, Rensselaer Co.
McWilliams, F. A., Monticello, Sullivan Co.
Meacham, Isaac D., Binghamton, Broome Co.
Meier, Gotlieb C. H., 210 E. 53d St., New York, New York Co.
Menzie, R. J., Caledonia, Livingston Co. Original.
Merritt, George, Cherry Valley, Otsego Co. Original.
Miller, J. H., Centro, Los Angeles, Cal.
Miller, William T., 310 W. 27th St., New York, New York Co. Original.
Milliken, S. E., 157 Madison Ave., New York, New York Co.
Minard, E. J. Chapin, 243 Quincy St., Brooklyn, Kings Co. Original.
Miranda, Ramon L., 54 W. 37th St., New York, New York Co. Original.
Mitchell, Howard E., 84 4th St., Troy, Rensselaer Co. Founder.
Mitchell, Hubbard W., 747 Madison Ave., New York, New York Co. Original.
Moore, Edward M., 74 S. Fitzhugh St., Rochester, Monroe Co. Founder.
Moore, Edward M., Jr., 74 S. Fitzhugh St., Rochester, Monroe Co. Original.
Moore, Richard Mott, 74 S. Fitzhugh St., Rochester, Monroe Co. Original.
Moore, William A., Binghamton, Broome Co.
Moriarta, Douglas C., Saratoga Springs, Saratoga Co.
Morrow, William B., Walton, Delaware Co.
Mott, Valentine, 62 Madison Ave., New York, New York Co.
Moyer, Frank H., Moscow, Livingston Co. Original.
Mudge, Selden J., Olean, Cattaraugus Co.
Munger, Charles, Knoxborough, Oneida Co.
Munson, J. A., Woodbourne, Sullivan Co. Original.
Munson, W. W., Otisco, Onondaga Co. Original.
Murdock, George W., Cold Spring, Putnam Co. Founder.
Murphy, John, 219 E. 37th St., New York, New York Co. Original.
Murray, Byron J., Saratoga Springs, Saratoga Co. Original.
Murray, S. J., 133 W. 87th St., New York, New York Co. Original.
Murray, William D., Tonawanda, Erie Co. Original.
Nelson, George W., Orwell, Oswego Co.
Nelson, William H., Taberg, Oneida Co.
Newberry, John S., Columbia College, New York, New York Co.

Newman, Robert, 68 W. 36th St., New York, New York Co. Original.
Nichols, Calvin E., Troy, Rensselaer Co. Founder.
Nichols, H. W., Canandaigua, Ontario Co. Founder.
Nichols, William H., West Sand Lake, Rensselaer Co. Founder.
Nicholson, A. R., Madison, Madison Co. Original.
Nicoll, Henry D., 51 E. 57th St., New York, New York Co. Founder.
Nold, John B., 165 North Ave., Rochester, Monroe Co.
North, Nelson L., 509 Bedford Ave., Brooklyn, Kings Co. Original.
Nutten, Wilbur F., Newark, Wayne Co.
Oberndorfer, Isidor P., 160 E. 63d St., New York, New York Co. Original.
O'Brien, Frederick Wm., 234 E. 112th St., New York, New York Co.
Ochs, Benjamin F., 773 Lexington Ave., New York, New York Co.
O'Hare, Thomas A., 157 State St., Rochester, Monroe Co. Original.
Oliver, William, Penn Yan, Yates Co.
Orton, John G., Binghamton, Broome Co. Founder.
Ostrander, George A., 61 Greene Ave., Brooklyn, Kings Co.
Packer, Thurston G., Smyrna, Chenango Co.
Paine, Arthur R., 99 Lafayette Ave., Brooklyn, Kings Co. Original.
Palmer, Edmund J., 1342 Lexington Ave., New York, New York Co.
Palmer, F. A., Mechanicsville, Saratoga Co.
Palmer, George M., Pike, Wyoming Co. Original.
Palmer, Henry C., cor. Genesee and Hopper Sts., Utica, Oneida Co.
Palmer, Walter B., 30 South St., Utica, Oneida Co.
Park, Roswell, 305 Delaware Ave., Buffalo, Erie Co.
Parr, John, Buel, Montgomery Co.
Parsons, Israel, Marcellus, Onondaga Co. Founder.
Parsons, John, Bailey Ave., near Kingsbridge Road, New York, New York Co. Original.
Parsons, W. W. D., Fultonville, Montgomery Co.
Pease, Joseph, Hamlin, Monroe Co. Original.
Perry, John Gardner, 48 E. 34th St., New York, New York Co.
Perry, Nathaniel M., Troupsburgh, Steuben Co. Original.
Peters, Samuel, 86 Mohawk St., Cohoes, Albany Co. Founder.
Pettit, John A., 526 S. Division St., Buffalo, Erie Co. Original.
Phelps, Charles, 34 W. 37th St., New York, New York Co.
Phelps, George G., 239 Blandina St., Utica, Oneida Co.
Phelps, William C., 146 Allen St., Buffalo, Erie Co.
Pierce, Edward A., Binghamton, Broome Co.
Pierson, George E. Kirkwood, Broome Co.
Pilgrim, Charles W., State Hospital, Utica, Oneida Co. Original.
Piper, Charles W., Wurtsborough, Sullivan Co.
Pohlman, Julius, Library Building, Buffalo, Erie Co.
Pollard, Abiathar, Westport, Essex Co. Original. (Retired list.)

Pooler, Hiram A., 34 Gramercy Park, New York, New York Co. Original.
Porteous, James G., Poughkeepsie, Dutchess Co. Founder.
Porter, Harry N., 1910 Harewood Ave., Washington, D. C. Founder.
Porter, P. Brynberg, 8 W. 35th St., New York, New York Co. Original.
Potter, Vaughn C., Starkville, Herkimer Co. Original.
Potts, E., Port Jervis, Orange Co.
Pray, S. R., 523 Bedford Ave., Brooklyn, Kings Co. Original.
Preston, John R., Schuylerville, Saratoga Co. Original.
Preston, B. I., 31 Chestnut St., Rochester, Monroe Co.
Price, Henry R., 485 Franklin Ave., Brooklyn, Kings Co.
Pritchard, R. L., 75 W. 45th St., New York, New York Co.
Pultz, Monroe T., Stanfordville, Dutchess Co. Founder.
Purple, Samuel S., 36 W, 22d St., New York, New York Co. Founder.
Putnam, Frederick W., Binghamton, Broome Co. Founder.
Putnam, James W., 130 Pearl St., Buffalo, Erie Co. Original.
Quin, Hamilton S., 171 Genesee St., Utica, Oneida Co.
Race, W. F., Binghamton, Broome Co. Original.
Rae, Robert, Portageville, Wyoming Co. Original.
Rand, Hannibal W., Keene, Essex Co. Original.
Ransom, H. B. (in care S. V. White & Co.), 36 Wall St., New York, New York Co.
Rave, Edward G., Hicksville, Queens Co. Original.
Read, Ira B., 66 E. 126th St., New York, New York Co.
Reagles, James, Schenectady, Schenectady Co. Original.
Reed, Henry B., 12 Vernon Place, Brooklyn, Kings Co.
Reid, Christopher C., Rome, Oneida Co.
Reynolds, Tabor B., Saratoga Springs, Saratoga Co. Founder.
Rice, George, Mechanicsville, Saratoga Co.
Rice, Isaac, Bloomingdale, Essex Co. Original.
Richards, Charles B., Binghamton, Broome Co. Founder.
Richmond, Nelson G., Fredonia, Chautauqua Co.
Ricketts, Benjamin M., 137 Broadway, Cincinnati, Ohio. Original.
Riley, Andrew W., Au Sable Forks, Clinton Co. Original.
Risch, Henry F., 208 17th St., Brooklyn, Kings Co.
Robb, William H., Amsterdam, Montgomery Co. Founder.
Roberts, John L. D., New York Mills, Oneida Co.
Robinson, Ezra A., Geneva, De Kalb Co., Ill. Original.
Rochester, Thomas M., 2 St. James Place, Brooklyn, Kings Co.
Rodgers, Harris C., 4 W. 125th St., New York, New York Co.
Rogers, S. Frank, 3161 6th Ave., Troy, Rensselaer Co. Original.
Rolph, R. T., Dunkirk, Chautauqua Co.
Roper, P. B., Alpine, Schuyler Co.
Ross, Frank W., 251 Baldwin St., Elmira, Chemung Co. Original.

Roth, Julius A., 308 E. 79th St., New York, New York Co.
Rousseau, Zotique, 99 2d St., Troy, Rensselaer Co. Founder.
Rudgers, Denton W., Perry, Wyoming Co.
Ruggles, Augustus D., 25 E. 11th St., New York, New York Co.
Rulison, Elbert T., Amsterdam, Montgomery Co. Original.
Rushmore, John D., 129 Montague St., Brooklyn, Kings Co. Founder.
Russell, Charles P., 198 Genesee St., Utica, Oneida Co.
Russell, William G., 63 Lee Ave., Brooklyn, E. D., Kings Co. Original.
Sabin, William B., 1425 Broadway, West Troy, Albany Co. Founder.
Sabine, Gustavus A., 8 E. 24th St., New York, New York Co. Original.
Sanders, E., 126 E. 82d St., New York, New York Co.
Sawyer, Conant, Auburn, Cayuga Co. Founder.
Saxer, Leonard A., 514 Prospect Ave., Syracuse, Onondaga Co. Original.
Sayers, Alexander, Marion, Wayne Co. Original.
Sayre, Lewis A., 285 Fifth Ave., New York, New York Co. Founder.
Sayre, Reginald H., 285 Fifth Ave., New York, New York Co.
Schmid, H. Ernest, White Plains, Westchester Co. Original.
Sears, F. W., 326 Montgomery St., Syracuse, Onondaga Co.
Segur, Avery, 281 Henry St., Brooklyn, Kings Co. Founder.
Selden, O. G., Catskill, Greene Co. Original.
Selden, Robert, Catskill, Greene Co. Original.
Seman, Frank G., Seneca Falls, Seneca Co.
Seymour, Ralph A., Whitney's Point, Broome Co.
Seymour, W. Wotkyns, 105 3d St., Troy, Rensselaer Co. Founder.
Sharer, John P., Little Falls, Herkimer Co. Original.
Shaw, Henry B., 21 E. 127th St., New York, New York Co.
Shepard, A. Warner, 126 Willoughby St., Brooklyn, Kings Co. Original.
Sherer, John D., Waterford, Saratoga Co. Original.
Sherman, F. J., Ballston, Saratoga Co.
Shrady, John, 149 W. 126 St., New York, New York Co.
Silver, Henry M., 39 7th St., New York, New York Co.
Simmons, E. W., Canandaigua, Ontario Co. Founder.
Simons, Frank E., Canajoharie, Montgomery Co.
Sizer, Nelson Buell de S., 336 Greene Ave., Brooklyn, Kings Co. Original.
Skinner, Smith A., Hoosick Falls, Rensselaer Co. Original.
Small, John W., 153 E. 50th St., New York, New York Co.
Smeallie, James A., 12 W. 40th St., New York, New York Co.
Smelzer, Baxter T., Havana, Schuyler Co.
Smith, David M., Penn Yan, Yates Co.
Smith, George C., Delhi, Delaware Co.
Smith, H. Lyle, Hudson, Columbia Co. Original.
Smith, J. Lewis, 64 W. 56th St., New York, New York Co. Original.
Smith, Joseph T., Canandaigua, Ontario Co. Founder.

Smith, Marcellus R., Cincinnatus, Cortland Co. Original.
Smith, Samuel L., Smithville, Chenango Co.
Smith, Samuel W., 24 W. 30th St., New York, New York Co. Original.
Smith, Stephen, 574 Madison Ave., New York, New York Co. Original.
Smyth, Arthur V. H., Minaville, Montgomery Co.
Snook, George, Parma, Monroe Co.
Southworth, Malek A., Little Falls, Herkimer Co. Original.
Southworth, Richmond Joseph, 1220 36th St., N. W., Washington, D. C. Original.
Spicer, Walter E., Holland Patent, Oneida Co.
Sprague, John A., Williamson, Wayne Co. Original.
Sprague, L. S., Williamson, Wayne Co.
Sprague, William B., Pavilion, Genesee Co. Founder.
Squibb, Edward H., 148 Columbia Heights, Brooklyn, Kings Co. Founder.
Squibb, Edward R., 152 Columbia Heights, Brooklyn, Kings Co. Founder.
Squire, Charles L., 409 E. Church St., Elmira, Chemung Co.
Steinführer, Gustavus A. F., Schenectady, Schenectady Co.
Steinke, Carl Otho Hermann, 220 17th St., Brooklyn, Kings Co. Original.
Stephenson, F. Halleck, 101 Warren St., Syracuse, Onondaga Co.
Stephenson, James A., Scio, Alleghany Co. Original.
Stockschlaeder, P., 186 South Ave., Rochester, Monroe Co.
Stockton, Charles G., 421 Franklin St., Buffalo, Erie Co.
Stone, Frank L., Le Roy, Genesee Co.
Strong, Orville C., Colden, Erie Co.
Strong, Thomas D., Westfield, Chautauqua Co. Founder.
Stubbs, Roland H., Waterford, Saratoga Co. Original.
Sullivan, John D., 74 McDonough St., Brooklyn, Kings Co.
Sutton, H. C., Rome, Oneida Co.
Sutton, Richard E., Rome, Oneida Co.
Swartwout, H. B., Port Jervis, Orange Co.
Swartwout, Leander, Prospect, Oneida Co.
Sweet, Joseph J., Unadilla, Otsego Co. Original.
Sweet, Joshua J., Unadilla, Otsego Co.
Sweetman, J. T., Jr., 1 Clinton Place, Troy, Rensselaer Co.
Taber, R. C., Tonawanda, Erie Co.
Taylor, John H., Holley, Orleans Co. Original.
Tefft, Charles B., 8 Henry St., Utica, Oneida Co.
Thayer, William Henry, 171 Livingston St., Brooklyn, Kings Co. Original.
Thomas, T. Gaillard, 600 Madison Ave., New York, New York Co. Founder.
Thompson, R. A., Norwich, Chenango Co.

Thornton, William H., 570 Niagara St., Buffalo, Erie Co.
Thwing, Clarence, 156 St. Mark's Ave., Brooklyn, Kings Co.
Todd, John B., Parish, Oswego Co.
Tompkins, Fred J., 128 2d Ave., Lansingburgh, Rensselaer Co.
Tompkins, H. C., Knowlesville, Orleans Co. Founder.
Tompkins, Orren A., East Randolph, Cattaraugus Co. Original.
Townsend, Morris W., Bergen, Genesee Co. Founder.
Traver, Richard D., 14 4th St., Troy, Rensselaer Co. Original.
Travis, Edward M., Masonville, Delaware Co.
Tremaine, Wm. S., 217 Franklin St., Buffalo, Erie Co. Founder.
Tripp, John D., Auburn, Cayuga Co. Original.
Truax, J. G., 17 E. 127th St., New York, New York Co.
Trull, H. P., Williamsville, Erie Co.
Tucker, Carlos P., 43 W. 26th St., New York, New York Co. Founder.
Tully, A. Melville, 205 North State St., Chicago, Ill. Original.
Turner, Melvin H., Hammondsville, Essex Co. Original.
Twohey, John J., 176 E. Utica St., Buffalo, Erie Co.
Vanderhoof, Frederick D., Phelps, Ontario Co. Original.
Vanderveer, J. R., 301 Carlton Ave., Brooklyn, Kings Co.
Van de Warker, Ely, 104 Fayette Park, Syracuse, Onondaga Co. Founder.
Van Dusen, Melvin E., Hornellsville, Steuben Co.
Van Fleet, Frank, 158 E. 81st St., New York, New York Co.
Van Hoevenberg, Henry, Kingston, Ulster Co. Original.
Van Vranken, Adam T., 1603 3d Ave., West Troy, Albany Co. Original.
Van Wagner, L. A., Sherburne, Chenango Co.
Van Wyck, Richard C., Hopewell Junction, Dutchess Co. Original.
Van Zandt, Henry C., Schenectady, Schenectady Co. Original.
Vaughn, Frank O., 249 Swan St., Buffalo, Erie Co. Original.
Vedder, George W., Philmont, Columbia Co.
Vincent, Ludger C., 52 W. 26th St., New York, New York Co.
Wagner, Charles Gray, State Hospital, Utica, Oneida Co.
Wakeley, Benjamin C., Angelica, Alleghany Co. Original.
Wales, Theron A., Elmira, Chemung Co. Original.
Wallace, Edwin E., Jasper, Steuben Co.
Wallach, Joseph G., 159 E. 62 St., New York, New York Co. Original.
Walser, William C., Port Richmond, Richmond Co.
Walsh, Simon J., 9 E. 129th St., New York, New York Co.
Ward, Charles S., 30 W. 33d St., New York, New York Co. Founder.
Ward, John J., Ellenville, Ulster Co.
Ward, R. H., 53 4th St., Troy, Rensselaer Co.
Ward, Stanley M., 417 Adams St., Scranton, Pa. Original.
Warner, John W., 107 E. 72d St., New York, New York Co.
Waterworth, William, 493 Franklin Ave., Brooklyn, Kings Co.

Welles, S. R., Waterloo, Seneca Co.
Wells, E. H., Binghamton, Broome Co.
Wells, William L., New Rochelle, Westchester Co. Original.
West, Joseph E., 171 Genesee St., Utica, Oneida Co.
West, M. Calvin, Rome, Oneida Co.
Weston, Albert T., 226 Central Park West, bet. 82d and 83d Sts., New York, New York Co.
Wheeler, Isaac G., Marilla, Erie Co.
Wheeler, John T., Chatham, Columbia Co.
White, Whitman V., 1024 Park Ave., New York, New York Co. Founder.
White, William T., 130 E. 30th St., New York, New York Co. Founder.
Whitford, James, Onondaga Valley, Onondaga Co. Original.
Wieber, George, 181 S. 5th St., Brooklyn, Kings Co. Original.
Wiener, Joseph, 150 E. 61st St., New York, New York Co. Founder.
Williams, William H., 207 17th St,, Brooklyn, Kings Co. Original.
Willis, A. B., Schenectady, Schenectady Co.
Willoughby, M., 1335 Main St., Buffalo, Erie Co.
Williamson, Edward A., Westchester Road, Westchester Co.
Wilson, Thomas, Claverack, Columbia Co. Founder.
Witbeck, Charles E., Cohoes, Albany Co.
Woodend, William D., Huntington, Suffolk Co. Founder.
Woodend, William E., 332 Lenox Ave., New York, New York Co.
Woodruff, R. Allen, Philmont, Columbia Co.
Woodworth, T. Floyd, Kinderhook, Columbia Co.
Wyckoff, Cornelius C., 482 Delaware St., Buffalo, Erie Co. Founder.
Wyckoff, Richard M., 532 Clinton Ave., Brooklyn, Kings Co. Founder.
Wyeth, John A., 267 Madison Ave., New York, New York Co. Original.
Young, Augustus A., Newark, Wayne Co. Original.
Young, John, Fishkill-on-Hudson, Dutchess Co. Original.
Young, John D., Starkville, Herkimer Co. Original.
Young, William, Cold Spring, Putnam Co. Founder.
Zeh, Edgar, Waterford, Saratoga Co.
Zeh, Merlin J., 1521 Broadway, West Troy, Albany Co. Total, 733.

Of 164 Founders, 124 remain on the list; of 286 Original Fellows, 246 remain on the list.

RETIRED FELLOWS.

Lyman Barton, Willsborough, Essex County (1890).
William N. Bonesteel, Troy, Rensselaer County (1890).
Alonzo Churchill, Utica, Oneida County (1890).
Samuel Ingraham, Palmyra, Wayne County (1890).
Jonathan S. Kneeland, Onondaga, Onondaga County (1890).
Abiathar Pollard, Westport, Essex County (1890).

HONORARY FELLOWS.

Sir John Simon, 40 Kensington Square, London, England (1890).

CORRESPONDING FELLOWS.

William Goodell, M. D., 1418 Spruce St., Philadelphia, Pa. (1890).
Henry O. Marcy, M. D., 116 Boylston St., Boston, Mass. (1890).

DECEASED FELLOWS.

DECEASED FELLOWS.

Name.	Age.	County.	Place of Birth.	Date of Death.	Medical College.	Year of graduation
Adams, John G.	77	New York	New York city	June 19, 1884.	Coll. Phys. and Surg., N. Y.	1830
Andrews, John S.	61	Kings	Bristol, Conn.	Jan. 3, 1889.	Univ. City of New York	1849
Ashton, Isaiah H.	39	Westchester	Philadelphia, Pa.	Feb. 16, 1889.	University of Pennsylvania	1870
Avery, George W.	61	Chenango	Earlville, N. Y.	Nov. 1, 1888.	Albany Medical College	1850
Ayres, Alexander	74	Montgomery	Oppenheim, N. Y.	Aug. 27, 1886.	Castleton, Vt.	1842
Barker, A. M.	37	Erie	Kendall, Orleans Co., N. Y.	Dec. 6, 1887.	University of Buffalo	1877
Bemus, William P.	63	Chautauqua	Chautauqua Co.	Sept. 19, 1890.	Berkshire Medical College	1847
Blakeman, William N.	85	New York	Roxbury, Conn.	Aug. 10, 1890.	Yale	1832
Bucklin, Daniel D.	70	Rensselaer	Brunswick, N. Y.	April 19, 1890.	Albany Medical College	1846
Budd, J. Henry	45	Ontario	United States	Feb. 25, 1890.	Buffalo Medical College	1875
Case, Mary W.	33	Rensselaer	New York state	Aug. 19, 1889.	Woman's Med. Coll., Phila.	1882
Church, Allen S.	62	New York	Great Barrington, Mass.	Oct. 24, 1884.	Castleton, Vt.	1848
Clark, Alonzo	80	New York	Chester, Mass.	Sept. 13, 1887.	Coll. Phys. and Surg., N. Y.	1835
Coit, William N.	52	Clinton	Plattsburgh, N. Y.	Aug. 4, 1886.	University of Pennsylvania	1856
Collins, Isaac G.	53	Westchester	Granville, N. Y.	Dec. 18, 1885.	Albany Medical College	1858
Collins, Thomas B.	61	Monroe	Mendon, N. Y.	Feb. 17, 1888.	Jefferson Med. Coll., Phila.	1851
Cooper, William S.	70	Rensselaer	Scotland	May 26, 1890.	Albany Medical College	1860
Cornell, F. O.	29	Montgomery	Glenville, N. Y.	Dec. 3, 1884.	Albany Medical College	1880
Cotes, J. R.	54	Genesee	Batavia, N. Y.	March 20, 1884.	Med. Dep. Univ. Buffalo	1852
Davidson, John	91	Queens	New York city	Dec. 26, 1884.	Lic. N. Y. St. Med. Soc.	1829
De La Mater, S. G.	73	Schenectady	Bethlehem, Alb. Co., N. Y.	June 23, 1888.	Albany Medical College	1842
Eager, William B.	65	Orange	Orange Co.	Jan. 18, 1890.	Coll. Phys. and Surg., N. Y.	1848
Edgerly, Edward F.	50	Essex	Moriah, Essex Co.	June 23, 1889.	Albany Medical College	1864
Elder, Jennie S.	32	Onondaga	Syracuse, N. Y.	Feb. 2, 1889.	Med. Dept. Syracuse Univ.	1878

Flint, Austin	73	New York	Petersham, Mass.	March 13, 1886.	Harvard Medical College	1833
Flood, Patrick Henry	72	Chemung	Pennsylvania.	March 12, 1886.	Geneva Medical College	1845
Fuller, Winfield S.	48	Monroe	Walworth, N. Y.	Jan. 13, 1888.	Coll. Phys. and Surg., N. Y.	1861
Gay, Charles C. F.	66	Erie	Pittsfield, Mass.	March 27, 1886.	Berkshire Medical College	1846
Gray, John Perdue	61	Oneida	Half Moon, Pa.	Nov. 29, 1886.	University of Pennsylvania	1849
Gray, John W.	53	Livingston	America.	April 17, 1886.	University of New York	1856
Griswold, Gaspar	29	New York	New York city.	March 4, 1886.	Bellevue Hospital Med. Coll.	1878
Guernsey, Desault	55	Dutchess	Wilton, N. Y.	Dec. 9, 1885.	Coll. Phys. and Surg., N. Y.	1850
Hall, H. C.	41	Broome	America.	June 1, 1887.	Univ. of New York Med. Coll.	1869
Hall, John E.	38	Albany	New Marlboro', Mass.	Nov. 3, 1886.	Albany Medical College	1877
Hamilton, Frank H.	73	New York	Wilmington, Vt.	Aug. 11, 1886.	University of Pennsylvania	1835
Higgins, Seabury M.	67	Onondaga	Brewster, Mass.	Dec. 9, 1889.	Univ. City of New York	1848
Hinds, Frederic J.	32	Washington	East Greenwich, N. Y.	April 26, 1887.	Bellevue Hospital Med. Coll.	1876
Hollister, Edwin O.	41	Ontario	Batavia, N. Y.	Oct. 8, 1887.	Bellevue Hospital Med. Coll.	1874
Hutchison, Joseph C.	60	Kings	Old Franklin, Mo.	July 17, 1887.	University of Pennsylvania	1848
Hyde, Frederick	80	Cortland	Whitney Point, N. Y.	Oct. 15, 1887.	Fairfield Medical College	1836
King, James E.	66	Erie	Warren, Pa.	Jan. 21, 1888.	Buffalo Medical College	1848
Knapp, John H.	67	Cortland	New Fairfield, Conn.	April 30, 1886.	Chenango County Med. Soc. Geneva Med. Coll.	1843 1861
Lauer, Eugene	40	New York	Germany.	Oct. 31, 1886.	Giessen and Marburg	1868
Lester, Sullivan W.	40	Rensselaer	Niantic, Conn.	Jan. 5, 1890.	Med. Dept. Univ. City of N. Y.	1881
Linsly, Jared	84	New York	Northfield, Conn.	July 12, 1887.	Coll. Phys. and Surg., N. Y.	1829
McClellan, Christopher R.	73	Kings	Maryland.	Jan. 13, 1887.	University of Maryland	1835
McTammany, Wm. F.	36	Rensselaer	Troy, N. Y.	July 21, 1888.	Bellevue Hospital Med. Coll.	1880
Moore, Joseph W.	47	Albany	Troy, N. Y.	Sept. 9, 1886.	Castleton, Vt.	1859
Morrell, Isaac	79	Chemung	Cornish, Maine.	Sept. 8, 1887.	Bowdoin Medical College	1832
Pask, William	55	Erie	England.	Aug. 24, 1884.	Med. Dept. Univ. Buffalo	1884
Peck, M. R.	62	Warren	Sand Lake, N. Y.	April 4, 1884.	Albany Medical College	1851

DECEASED FELLOWS.—*Concluded.*

NAME.	AGE.	COUNTY.	PLACE OF BIRTH.	DATE OF DEATH.	MEDICAL COLLEGE.	Year of graduation
Pomeroy, Charles G.	71	Wayne	New York	Dec. 14, 1887.	{ Ontario County Med. Soc. { Jefferson Medical College	1837 1850
Pryer, William Chardavoyne	54	Westchester	New York city	Sept. 24, 1888.	Coll. Phys. and Surg., N. Y.	1862
Purdy, Isaac	57	Sullivan	Walkill, N. Y.	Dec. 6, 1885.	Castleton, Vt.	1851
Reynolds, Rufus C.	79	Monroe	Columbia, Herkimer Co.	Dec. 22, 1886.	Fairfield Med. College, N. Y.	1830
Ring, William	63	Erie	United States	April 20, 1887.	University of Buffalo	1848
Robinson, Joseph W.	49	Steuben	Angelica, N. Y.	Jan. 4, 1887.	Buffalo Medical College	1862
Rochester, Thomas F.	63	Erie	Rochester, N. Y.	May 24, 1887.	University of Pennsylvania	1848
Sabin, Robert Hall	56	Albany	Saxton's River, Vt.	Dec. 4, 1888.	Albany Medical College	1856
Sayre, Lewis Hall	38	New York	New York city	Jan. 2, 1890.	Bellevue Hospital Med. Coll.	1876
Schoonmaker, E. J.	65	Seneca	Ulster Co., N. Y.	Aug. 19, 1889.	Geneva Medical College	1848
Skiff, George V.	53	New York	Pike, N. Y.	Jan. 28, 1890.	Univ. City of New York	1860
Slack, Henry	57	Dutchess	Albany, N. Y.	Dec. 10, 1886.	Albany Medical College	1852
Slocum, J. O.	65	Onondaga	Pompey, N. Y.	Mar. 3, 1885.	Castleton, Vt.	1846
Squire, Truman Hoffman	66	Chemung	Russia, Herkimer Co.	Nov. 27, 1889.	Coll. Phys. and Surg., N. Y.	1848
Steele, Charles G.	27	Erie	Buffalo, N. Y.	Feb. 12, 1888.	University of Buffalo	1886
Stevens, Frederick P.	31	New York	Ithaca, N. Y.	Dec. 4, 1884.	Bellevue Hospital Med. Coll.	1877
Stevenson, William G.	44	Rockland	Troy, Ohio	Feb. 3, 1888.	Bellevue Hospital Med. Coll.	1864
Sutton, George Samuel	63	Dutchess	Louisville, N. Y.	Sept. 6, 1888.	Coll. Phys. and Surg., N. Y.	1859
Taylor, Isaac E.	79	New York	Philadelphia, Pa.	Oct. 30, 1889.	University of Pennsylvania	1834
Webb, Edwin	85	Queens	Devonport, England	Jan. 29, 1890.	Coll. Phys. and Surg., N. Y.	1825
White, Francis V.	56	New York	New York city	Oct. 9, 1889.	Univ. City of New York	1855
Winship, Cornelius A.	62	Rensselaer	Litchfield, Conn.	Feb. 14, 1888.	Albany Medical College	1858
Wood, Charles S.	65	New York	Litchfield, Conn.	Feb. 1, 1890.	Jefferson Med. College, Phila.	1851
Young, Oscar H.	43	Delaware	Pennsylvania	Jan. 21, 1889.	Jefferson Med. College, Phila.	1876

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